PROJECTS, PRODUCTS AND SERVICES

Celebrating 75 Years of Excellence

US Army Corps of Engineers®
Omaha District

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Projects, Products and Services: Celebrating 75 Years of Excellence, U.S. Army Corps of Engineers, Omaha District, is a publication of the U.S. Army Corps of Engineers and was printed in the United States.

Much of the history of the U.S. Army Corps of Engineers, Omaha District has been set forth in various historical documents as well as through oral renditions by long-time employees; the facts as represented here are accurate to the best of the agency's knowledge. Various Internet Web sites were utilized to verify or supplement facts and were not quoted verbatim. The information utilized from such Web sites reflects the content on the Web sites at the time the research was performed.

All photos by Harry Weddington except as noted.

To the men and women of the Omaha District and their families, those currently serving and those who have served before us. In recognition of your sense of duty and dedication to the people of this great nation.

BUILDING STRONG®

"If I have seen a little further it is by standing on the shoulders of giants."
– Sir Isaac Newton, February 5, 1676


Colonel David C. Press

Those words from the 17th century philosopher and physicist are relevant as we celebrate more than three quarters of a century of service to this great nation. It is my desire that this photo history book of the first 75 years of the Omaha District will help capture, in part, the magnitude of the incredible mission and legacy that you are a part of as a teammate within the Omaha District.

Today we are riding the crest of a wave, and I believe the Omaha District is operating at its historic zenith regarding high energy and delivery of outstanding projects, products and services. As we near the end of our third straight year with a billion-dollar program, we can proudly say we have upheld the banner of excellence that was handed to us from generations of respected, hard-working Americans who put the Omaha District on the map.

The new frontiers and level of program we face today is not all that much different from the unknown and challenging programs that faced Captain Young and 60-plus members of the Omaha District back in 1934. While the missions change and the demands rise, the one constant for the Omaha District has been the incredible power and commitment of its members.

Today our workforce is spread not only from our headquarters office in Omaha and across most of the upper Midwest, but also across the United States, to the battlefields of Iraq and to the violent mountains of Afghanistan. We march forward on the flooded plains of North Dakota to the scarred landscape of Mississippi and Louisiana to the foreign sands of Kuwait…we are making a difference all over the map.

As we strive to meet the current demands of our organization, we should pause to take stock and feel pride in what we have accomplished for the Corps and for our nation. It's easy to get buried in the details of our day-to-day tasks, and it's often difficult to see the results of our hard work. So let's step back and feel good about the nearly 1,300 people today, and those who walked these halls before us, that make everything work while executing a huge program.

I urge you to look around you in the halls and see the faces that make up the Omaha District – some are engineers, architects and scientists, some are real estate professionals, some are biologists helping our rivers recover endangered species and some are overseeing massive military construction efforts. Others are telling our story, keeping people safe and cleaning up our nation's towns and cities. I could go on and on. There is enough talent, diversity and expertise in the Omaha District to fill hundreds of these books.

We are relevant, ready, responsive and reliable. The Corps does its job in peacetime and war time and we do it in more than 100 countries. The Omaha District team is a world-class organization, filled with only the best people.

Let's celebrate our achievements, our relationships and our successes by making this a time of understanding. We continue to uphold a vital commitment to our fellow man and we have made the world a better place.

Our only acceptable final result is that which embraces integrity.

Thank you again for your service to this great nation.

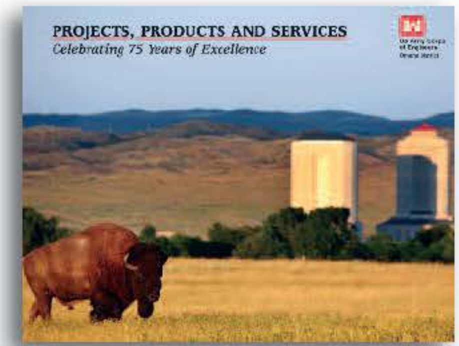
Building Strong,

D. C. Press

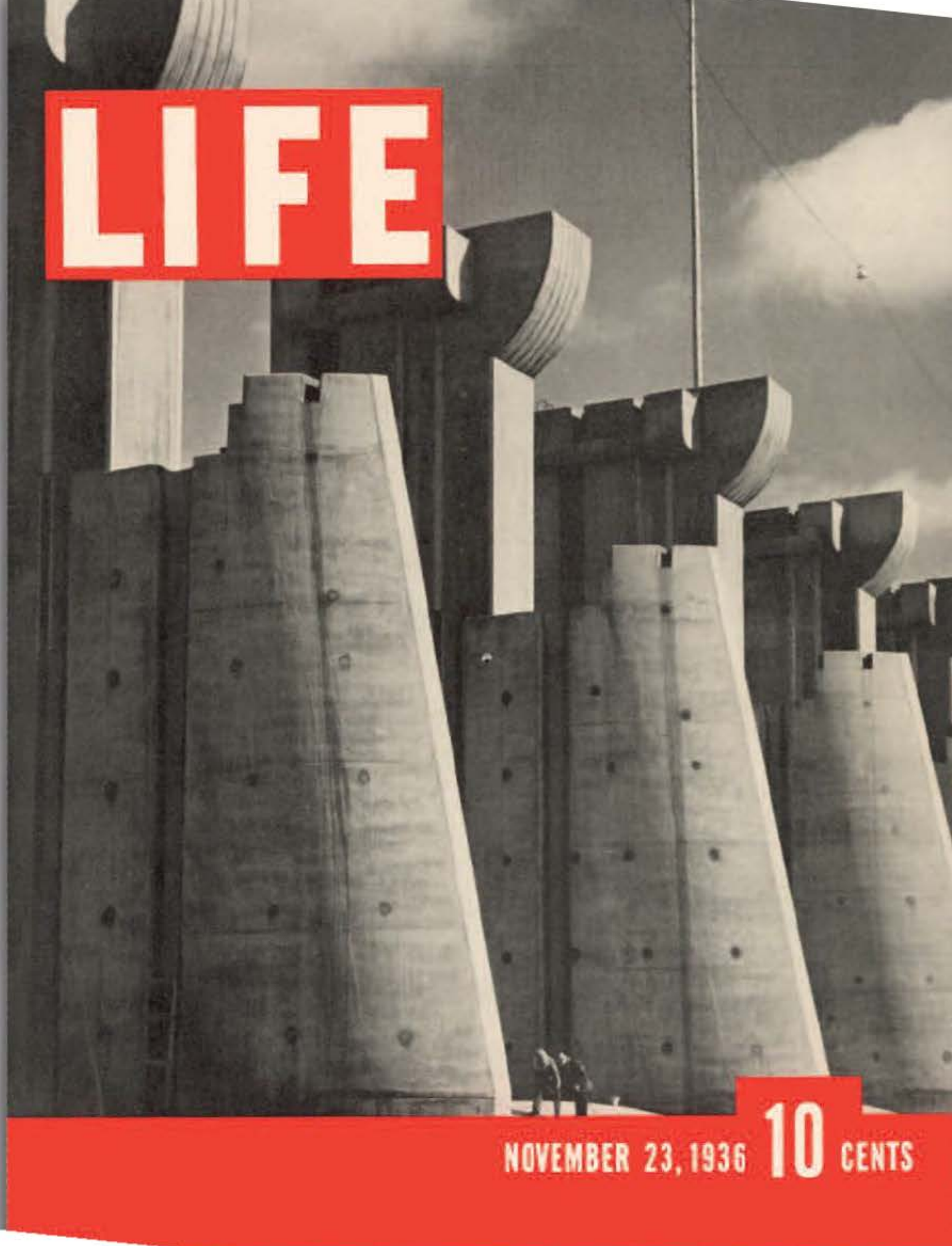
David C. Press
Commander
Colonel, EN

US Army Corps
of Engineers®
Omaha District

TABLE OF CONTENTS



Fort Peck Dam



LIFE magazine cover photo courtesy of Getty Images

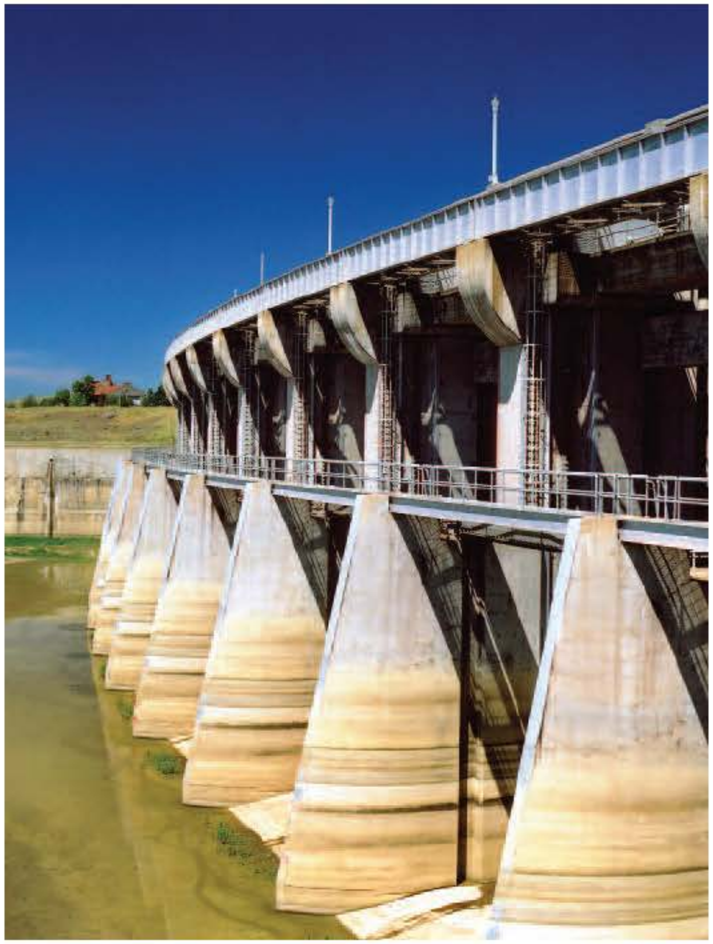
In the 1930s, the nation was crumbling under the Great Depression. President Franklin Delano Roosevelt shouldered the responsibility of addressing the needs of thousands of unemployed Americans who were out of work and desperate for a way to scrape out a life for themselves and their families. His many social programs, including the Works Progress Administration (WPA), generated jobs so critically needed. On November 23, 1936, the inaugural issue of *LIFE* magazine was released. The cover featured a photo of the Fort Peck Dam, which was still under construction by the Omaha District of the U.S. Army Corps of Engineers and part of the WPA program.

LIFE's publisher, Henry R. Luce, described the magazine as a way for Americans to see life and the world and to witness great events from thousands of miles away. To set the tone of the magazine, Luce tapped the talents of Margaret Bourke-White, the first photojournalist at TIME, Inc. Her stunning cover photograph of the Fort Peck Dam became an icon of the 1930s and the great public works completed under Roosevelt's New Deal. Inside, the picture-heavy article told the story of the workers building the Fort Peck Dam.

Fort Peck Dam was the first of six main stem dams built on the Missouri River to manage flood risks, but its history reaches back more than 50 years before ground broke on the project. In 1879, Colonel Campbell Peck, owner of a trading post in the area, petitioned his friend, President Chester Arthur, to build a dam to control the Missouri to aid in navigation and irrigation.

Even before Fort Peck Dam received approval, the Corps was busy surveying and performing geological tests knowing what was to come. During construction, President Roosevelt visited twice during his tours of New Deal projects.

At the height of construction, more than 10,000 men worked, most of them for 50 cents an hour, to construct the four-mile-long embankment, diversion and intake tunnels and its mile-long spillway. Not only did the dam itself spark the need for construction, but so did the camp towns that housed the workers. In fact, boom-town populations soared to more than 40,000 at their peak.






Chapter One

Civil Works

The U.S. Army Corps of Engineers had an early introduction to the need for a Civil Works program along the Missouri River. In 1867, Captain Charles W. Howell of the Corps boarded a steamboat at Sioux City, Iowa, bound for Fort Benton, Mont. on a government survey of the river.

Preceded by a long line of explorers, Howell's mission differed in that he was sent to investigate improved navigation along the Missouri. With miners having discovered gold in Montana and military operations growing along the river, the government was ready to facilitate transportation on the upper Missouri.

With Howell's work, the Corps began efforts that led to the formation of the Omaha District in 1934. Today, the District's Civil Works program is the largest in the continental United States and second only to the Alaska District in area.

Between 1932 and 1957, the District built six main stem dams and many smaller dams along Missouri River tributaries. These, along with a system of federal and private levees, protect urban and agricultural property and lives from the ravages of floods. The Omaha District estimates that this system has prevented an estimated billions in damages in today's dollars.

Having begun with the mission of flood risk management, the Omaha District has shifted the focus of its Civil Works program to address watershed and ecosystems for threatened and endangered species. The Missouri River Ecosystem Program is central to these efforts. One of the largest, most comprehensive studies in the nation, it examines the Missouri River basin in its entirety and what is needed to restore the ecosystem.

As part of this, the District is working with 13 agencies and more than 50 Tribes, all of whom have diverse interests in the area. Called the Missouri River Recovery Implementation Committee, the group evaluates how well river management efforts reflect the original intent of the Flood Control Act of 1944 and provides an opportunity for stakeholders to share input on what remains an immensely complex river.

Photos Left: *The Omaha District's Civil Works mission has included the planning and construction of six main stem dams, and numerous dams and levees on Missouri River tributaries. In the last 75 years, these projects have managed flood risk, generated power, created recreation opportunities and created habitat for wildlife.*


DEPT.

A River Runs Through It

In the midst of the second World War, residents along the Missouri River were waging their own war against this unyielding force of nature. The 1943 spring thaw caused eight of the Missouri's tributaries to spill over their banks. The main stem itself flooded between Pierre, S.D., and Rulo, Neb. A total of 700,000 acres was submerged with damages reaching almost $8 million. But that was only the beginning.

Between May 6 and May 11, the rains came. Another downpour drenched the basin from May 15 to May 20. Once more, the Missouri went out of its banks and flooded 540,000 acres. Then another nine days of rain caused it to rise and inundate more than 1.2 million acres, many of which had been underwater only days before. This time the estimated damages amounted to $32 million.

The floods interrupted training, interfered with wartime production and ruined crops needed by American allies overseas. The combined torrents, known as the "Flood of '43," had a long-term impact on the Missouri River basin. The flood became a catalyst in markedly changing the mission and program of the Civil Works program within the Omaha District.

Two Views on One River

Colonel Lewis A. Pick's concern as Missouri River Division Engineer focused on flooding. Pick had served as the New Orleans District Engineer just after the record-breaking Mississippi River floods of 1927 and had served as the engineer assistant to Secretary of Commerce Herbert Hoover on the Relief Commission to the area.

Photo Left: *The Corps used many means during early efforts to control the Missouri River. In this photo, crews wove "mattresses" out of willow branches to slow the flow of the mighty river. (File photos.)*

Colonel Lewis A. Pick (right) graduated from the Virginia Polytechnic Institute in 1917. He was a 26-year veteran of the U.S. Army Corps of Engineers. William G. Sloan, assistant director of the Region 6 office of the Bureau of Reclamation, had served with the U.S. Army Corps of Engineers during World War I. Before the war, he had managed the Department of Agriculture's drainage investigations in Wyoming and Montana. (File photos.)

As Division Engineer, he directed the enormous military construction program in the Missouri River basin and developed his proposal for Missouri River control and postwar development.

Pick's experience with the lower Mississippi garnered credibility toward his 13-page proposal that addressed managing the Missouri River. Previous river development in the valley had been oriented toward specific projects rather than a broad program. Pick's plan shifted the emphasis from a single-purpose to multiple-purpose concepts. It envisioned a vastly expanded federal water policy in the basin.

Pick recommended that the Corps construct multiple-purpose dams in the Dakotas. These dams would store flood-producing water and use it to provide hydroelectric power, wildlife and recreation facilities, a navigable channel and irrigation, plus water for domestic and sanitary needs. He expected other benefits as well, including protecting lives and property, and stabilizing and encouraging economic development.

The Pick-Sloan Plan led to a series of main stem dams on the Missouri River, that stored flood-producing waters and provided hydroelectric power, irrigation and economic benefits.

His plan proposed a progressive development. Pick concluded that it would not be feasible to construct all the multiple–purpose units simultaneously. He recommended an orderly, four-phase approach as circumstances and funds permitted.

Also focused on taming the Missouri was William G. Sloan, assistant director of the Region 6 office of the Bureau of Reclamation in Billings, Mont. After the passage of the 1939 Reclamation Act, Sloan was assigned to prepare a basinwide water resources development plan in order to bring the greatest good to the greatest number of people. The Bureau's report assumed that farming would remain the primary basis of the basin's economy.

The Corps and Bureau Join Forces

The Pick plan, with its emphasis on flood control and navigation, drew its strength from lower basin interests and their advocates in Congress. Support for Sloan's plan for irrigation and hydroelectricity came from upriver and had articulate congressional backing.

Both of the original plans proposed a series of big dams and reservoirs on the main stem above Sioux City. Both would develop hydropower, where feasible, after meeting primary demands for irrigation or navigation and flood control. The two agencies made major compromises on proposed main stem dams between Fort Peck and Sioux City. They agreed on five in the Dakotas, which would impound 72 percent of the new water storage in the entire basin. The Corps and the Bureau settled additional differences in the original proposal, bringing together both groups through the Pick-Sloan Plan.

On December 22, 1944, President Roosevelt approved the Flood Control Act, authorizing the Pick-Sloan Plan. This legislation provided the framework for the development of water resources on the Missouri and the basis for Omaha District's major undertakings on the main stem in the years to come.

Manpower

Number of workers	50,000
Man-hours	3,000,000

Material and Equipment

Sandbags	4,700,000
Sand	20,000 tons
Rock	15,000 tons
Hand shovels	10,000
Rubber boots	5,000 pairs
Raincoats	3,000
Flashlights	5,000
Carbide lights and flares	6,200
Life preservers	2,000
Trucks and other housing vehicles	3,600
Tractors	210
Heavy earth-moving machinery	415
Barges and boats	40
Water pumps	900
Electric light plants	750

Police Protection and Traffic Control

Regular, military and volunteer	3,238

Communications

Special telephones on dikes	61
Private and trunk line installations	152
Teletypewriter installations	13
Two-way radio on planes, trucks and helicopters	139
Mobile radio telephones	52
Walkie-talkies	87
Portable amateur radio stations	85

To serve flood control agencies, Northwestern Bell installed many forms of special line facilities, expanded PBX systems, integrated telephone and other communication services.

Housing and Food

Persons housed	5,000
Hot meals served	80,000
Sandwiches	700,000

Services provided by Red Cross, Salvation Army, Volunteers of America, etc.

Dollars

Much of the work was volunteer. Much of the equipment was donated. But costs still mounted into many millions of dollars.

While the cost and resources of building dams along the Missouri River were extensive, so was the economic impact of floods. The chart above estimates the costs of holding back Missouri River flood waters from Omaha, Neb., and Council Bluffs, Iowa, during one week in 1952.

Early Demand for Dam Control

In the midst of fields of wheat and unplowed grass, northeast Montana became the home of the first civil works project for the Omaha District of the U.S. Army Corps of Engineers. The area had been settled as Fort Peck since 1867 and fostered a booming trading business down the Missouri River. As the dependence on the river grew, so did the interest in a dam to help with navigation and irrigation. In 1932, still burdened with the Great Depression, the nearby town of Glasgow prepared itself for the boom to its economy, population and notoriety that would come with the construction of the Fort Peck Dam.

Fort Peck was the first project that involved a comprehensive analysis of the needs and resources of an entire river basin. Federal water resource development efforts first began moving in this direction with the approval of the Reclamation Act of 1902, making irrigation a legitimate federal activity.

Managing the Waters

Flood control had developed into a Corps mission when the 1917 Flood Control Act passed. Eleven years later, Congress specifically included the Missouri in plans for Mississippi flood control. In the 1930s came the Corps' "308" reports, which included a basin-by-basin assessment of the nations' waterways.

The 308s took their name from a six-page House of Representatives publication that paid special attention to the future development of hydroelectricity. The brief proposal outlined improvements for navigation, flood control and irrigation. The plan included several Montana irrigation projects and identified 16 upper river sites generating hydroelectricity. The proposal

Fort Peck Dam

Construction start	1933
Construction complete	1940
Construction cost	$84 million
Type	Hydraulic earth filled
Volume of fill	126 million cubic yards
Height	250.5 feet
Width of crest	50 feet
Width at base	3,500 feet
Length	21,026 feet

Fort Peck Powerplant

Total generating capacity	185,250 kilowatts
Number of generators	5
Type of generators	Vertical Francis

Fort Peck Lake

Length	134 miles
Maximum depth	220 feet
Storage capacity	18.688 million acre-feet

Photo Left: *The Fort Peck Dam served as a training ground for tens of thousands of civilian and military personnel. The experience gained on the project created the nucleus of the Omaha District's force that later constructed the great main stem dams on the Missouri.*

President Franklin D. Roosevelt authorized the construction of the Fort Peck Dam under the Works Progress Administration of his New Deal. The program sought to stimulate the national economy following the Great Depression. (File photos.)

also identified improvements on the Missouri River from Sioux City, Iowa, to the mouth to help with navigation. Waters released from headwaters storage, mostly behind a dam at Fort Peck, would also supplement low-water flows in these areas of the river.

It Takes a Village

With the Chief of Engineers recommending work on the $84 million project under the National Industrial Recovery Act, President Franklin D. Roosevelt approved construction in October 1933. While the Fort Peck Dam represented an essential part of the Missouri River development plan, it also fit the needs of a government anxious to revive the national economy. The project provided work, stimulated industrial production and strengthened the economy. It demanded the manufacture of great fleets of earthmoving equipment, rolling stock, electrical equipment and other machinery. The dam directly employed as many as 10,546 men at one time at the site and thousands more across the country.

Fort Peck Dam differed from subsequent structures on the Missouri River in two important ways. The dam originally did not include facilities for generating hydroelectricity and contained hydraulically-placed earthfill. Therefore, the project naturally divided itself into the dam, the diversion tunnels and the spillway.

Over the course of the next five years, crews worked long days in the heat of the summer and cold of the winter – with temperatures

The magnitude of the construction of the Fort Peck Dam required an enormous work crew. Contractors planned and built a city to house 4,000 of the people – and in many cases their families too – who worked on the dam. More than 40,000 people flooded to the area looking for work.

plunging as low as -60°F – even pulling 24-hour shifts to ensure that work on the tunnel sections of the dam moved forward as scheduled. By incorporating French drains, water was allowed to pass through the dam in a controlled, predictable manner during construction. Because water was not allowed to percolate through the immediate foundation strata of the embankment, workers formed a steel sheet cutoff wall against the water that measured over 10,000 feet long and contained 17,000 tons of steel.

Stretching out from the tunnels was a mile-long spillway that tapered from 800 to 125 feet in width. The 5.23-percent grade allowed a flow velocity of 65 miles an hour. The bridge over the structure held sixteen 80-ton Stoney gates that released water from the spillway and were installed nowhere else on the Missouri River.

Tragedy Delays Completion

Two weeks after the completion of the dam in September 1938, the daily inspection revealed a problem. As the District Engineer was being driven across the bridge to inspect the worrisome spot, the dam began to move. During the next 10 minutes, tracks, trains, boats, pipeline and 34 men rode the shifting, 1,700-foot mass. When it came to rest, the equipment was submerged and eight men were dead, buried in the slide. Over 5.2 million cubic yards of material came loose from the dam, and five percent of the structure had been destroyed.

At 134 miles in length, Fort Peck Lake is Montana's largest body of water and has 1,520 miles of shoreline, longer than the California coast. Providing excellent fishing for 50-plus species, the lake is surrounded by the Charles M. Russell National Wildlife Refuge, which provides one million acres of public land for fishing, hiking, hunting, camping, bird-watching and other outdoor recreation.

Subsequent tests determined that, among other things, the foundation of the dam needed broadening to withstand the shearing forces to which it was subjected. Crews stabilized the structures and constructed a protective two-mile dike around the site. After two more years of work, the Fort Peck Dam reached completion on October 11, 1940, creating the first of the "Missouri Great Lakes."

Power Play

Montana Senator Burton Wheeler succeeded in having hydroelectric generating power added to the scope of the Fort Peck project. The first of the dam's twin power plant towers rose at Fort Peck, with the turbines humming into service in July 1943. Later, Western and wartime power demands led to construction of a second power plant that was complete in June 1961.

Note: Fort Peck Dam was constructed under the Fort Peck District, which later became part of the Garrison District and eventually joined the Omaha District in 1960.

Taming the Muddy Mo'

There's nothing small about Garrison Dam or the accompanying Lake Sakakawea. Located 75 miles north of Bismarck, N.D., the Corps designed the dam to include 75 million cubic yards of embankment, making it, at the time, the largest dam of its type ever constructed. Designed to be 12,000 feet long and 210 feet high, Garrison Dam would impound a 200-mile-long reservoir that would contain 23 million acre-feet of water, a volume almost 20 percent greater than that impounded by Fort Peck Dam.

The Chief of Engineers understood the magnitude of the project at hand. As a result, he established a new Garrison District on July 1, 1946, which comprised virtually all of the Missouri River basin in North Dakota, together with the basin of the Little Missouri River in three nearby states.

Before work could even begin, crews built a 13.5-mile concrete highway for an access road and railroad tracks down to the river, before constructing a 1,350-foot-long access bridge 1,000 feet below the dam. The bridge was unusual in that its 26-foot-wide roadway permitted two-way traffic while carrying a rail line and an adjoining four-foot-wide pedestrian sidewalk. Designed to carry heavily loaded trains and wheeled earthmoving equipment simultaneously, the bridge exceeded standard highway bridge specifications and was built to withstand the strong winds of the area.

The Site Work Begins

Work on the embankment began in July 1947 and continued on an enormous scale for more than seven years. Moving as much as 80,000 cubic yards a day, construction crews completed the embankment in November 1954. This was

Photo Left: *At the time Garrison Dam was built, it was the largest dam of its type, with a volume almost 20 percent greater than that impounded by Fort Peck Dam. Lake Sakakawea is the largest Corps reservoir in the United States, containing one third of the total water stored by the Missouri River main stem reservoir system. At normal operating pool, the lake can store enough water to cover the entire state of North Dakota in about six inches of water.*

Garrison Dam

Construction start	1946
Construction complete	1960
Construction cost	$284.2 million
Type	Rolled earth
Height	210 feet
Length	2.5 miles
Base	0.5 miles
Embankment	66.5 million cubic yards of rolled earth and 1.5 million cubic yards of concrete

Garrison Dam Power House

Total generating capacity	515,000 kilowatts
Number of generators	5

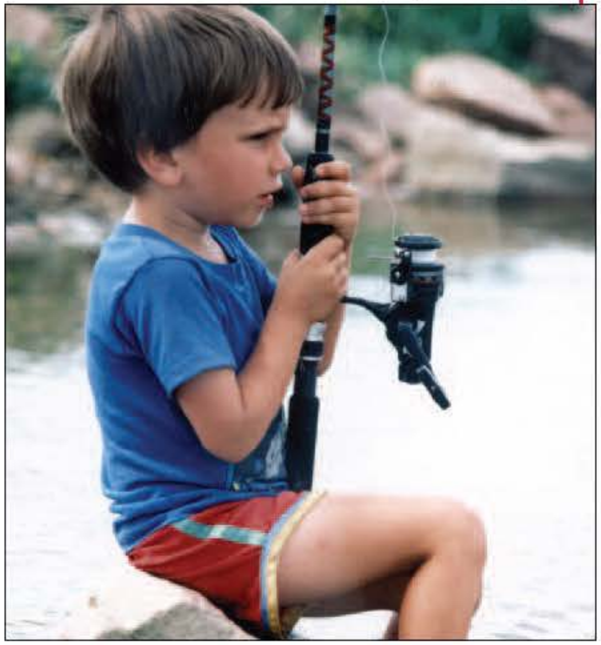
Lake Sakakawea

Reservoir Length	178 miles
Shoreline	1,884 miles

The Garrison Dam Powerhouse houses five generating units that produce an annual average 2.6 million mega-watt hours of electricity. This translates into a value in excess of $25 million in revenue.

High-water danger caused the Garrison engineers concern as the dam's 1953 closing date approached. The spring flood of 1952 had sent 300,000 cubic feet of water per second down the Missouri through the partially-completed embankment, causing a temporary outer dam on the intake channel to fail. Since it would have to be removed prior to the diversion, the Corps chose not to rebuild it before completing work the following year.

Lake Sakakawea State Parks offers a wide range of water-based recreational activities and facilities. The Garrison Dam National Fish Hatchery is the world's largest walleye and northern pike producing facility and also works to restore endangered species, such as the pallid sturgeon.



followed by a second embankment that took three years to build and impounds Lake Audubon.

Keeping a spirited construction pace, work on the hydropower and flood control tunnels began in the fall of 1948 with crews working around the clock at times. The Garrison District planned to regulate water flow with 113-ton radial control gates. Radial gates had been used before to control spillway flow levels but not at the upstream end of an outlet tunnel. The Corps ran extensive tests with a 1:25 scale model that led to modifications to the design of the gates along the way.

Spring 1953 came early and dry, and contractors began closing the embankment. The initial closure had been made with 21,000 cubic yards of rock. Crews continued dumping until they could grade a 60-foot-wide road across the rock closure dam. At the same time, the contractors built an earthen cofferdam upstream from the rock dam to allow them to drain the main dam construction area of the river. Crews raised the dam to 70 feet during the 1953 construction season because they were aware of the potential for a large flood the following spring of 1954.

At the same time, contractors began work on the powerhouse and the attached stilling basin that would receive and calm water from the flood control tunnels.

Preparing the Spillway

The spillway of the Garrison Dam required massive excavation. Approximately 29 million cubic yards of material were taken from the dam's upstream approach channel and 25 million more cubic yards were taken from the spillway chute itself. The Corps designed the spillway to enable a flow of 827,000 cubic feet per second of water around Garrison Dam, more than double the volume of the record flood in this reach.

Garrison Dam Comes Under Omaha District

On July 1, 1956, the Chief of Engineers ordered the Garrison District to absorb the Fort Peck District to consolidate Corps administration in the upper Missouri basin. The Omaha District then absorbed the newly enlarged Garrison District in April 1960. The same year, crews completed the fourth and fifth generators at Garrison Dam, leaving only small amounts of construction at the powerhouse and switchyards unfinished.

Work on the Garrison Dam involved new drilling techniques, specially made equipment and innovative approaches to construction. (File photos.)

Since its opening in 1960, Garrison Dam has provided the hydropower and flood control potential envisioned by Colonel Pick and others who directed its development. The Corps has also worked with the Bureau of Reclamation to use the Garrison pool to irrigate 250,000 acres. The Garrison Dam has also provided a steady flow of water for navigation as well as generating hydropower.

Ideal Location

The third of the great Pick-Sloan dams to be built on the Missouri, the Oahe Dam was constructed six miles north of Pierre, S.D. Its 91 million cubic yards of earth made Oahe, upon its completion, the largest rolled earthfill dam in the world.

Centrally located between the Fort Randall and Garrison Dams, the site for the Oahe Dam proved ideal in that high bluffs approached relatively close to the river in that area. This permitted the engineers to plan a dam that would be shorter than the Fort Randall, Garrison or Fort Peck Dams. But, because of its height and the topography of the area, its reservoir would hold a larger volume of water than any of the other dams on the Missouri. In addition, nearby Pierre could supply enough housing to eliminate the need to plan, design and build a special town for construction workers.

Breaking Ground

Oahe Dam did not follow the pattern of the Corps' earlier Missouri River dams, which had their outlet works, spillway and powerhouse grouped closely together. At Oahe Dam, the Corps located the powerhouse on the left bank of the Missouri, the outlet works on the right bank and the spillway one mile beyond the outlet works. The outlet works consisted of six flood control tunnels together with an intake structure for each tunnel and a stilling basin.

Contractors began earthwork in 1954 and by late 1957, the embankment work had narrowed the Missouri's channel at Oahe enough to begin planning for closure. Garrison Dam helped with

Photo Left: *One of the world's largest earth-rolled dams, Oahe Dam and Lake provide more than $371 million in annual benefits. Comprising 461,000 acres of land and water, the area includes 51 recreation areas that include campgrounds and day-use areas, moderately developed and primitive areas for outdoor recreation.*

Oahe Dam

Construction start	1948
Construction complete	1958
Construction cost	$345 million
Type	Rolled earth
Volume of earth fill	92,000,000 cubic yards
Volume of concrete	1,100,000 cubic yards
Height	245 feet
Width at crest	60 feet
Spillway gates	8 tainter
Length	9,300 feet

Oahe Powerplant

Total generating capacity	786,000 kilowatts
Number of generators	7
Type of generators	Francis

Lake Oahe

Water surface	370,000 acres
Reservoir Length	231 miles
Maximum depth	205 feet
Shoreline	2,250 miles

President John F. Kennedy officially dedicated the first two of seven power generators at the dam in August 1962. The dam now provides pollution-free hydropower energy to Nebraska, Minnesota, Montana, and North and South Dakota.

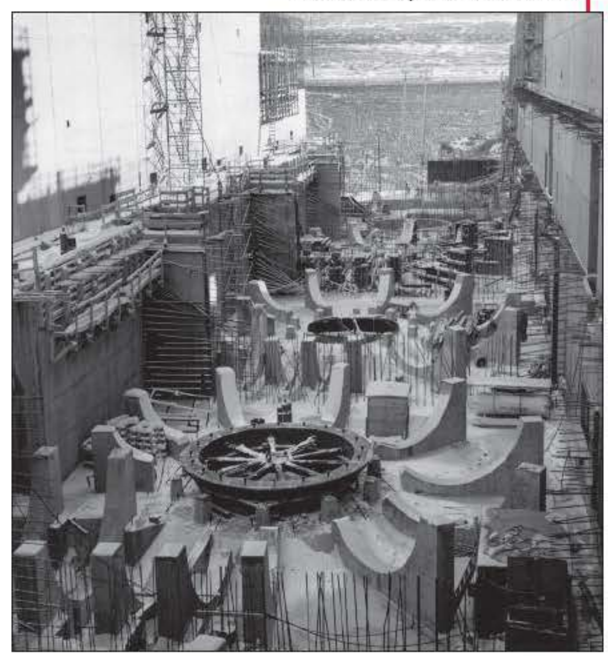
closure efforts at Oahe by choking off the Missouri's flow approximately 250 miles upstream. In spite of an unexpected increase by 25 percent in water flow, crews completed closure just 21.5 hours after they began.

By 1961, contractors were wrapping up work on the six flood-control tunnels. Construction then moved forward on the intake control structures above the power tunnels and the powerhouse substructure. Work on the powerhouse superstructure and surge tank bases required 800 men who worked in three shifts around the clock.

Dedication and Completion

The first of the powerhouse's seven 89,500-kilovolt generators was put into operation in March 1962. On August 17, 1962, President John F. Kennedy came to the dam and officially dedicated the two generators. The final generator went into operation in June 1963. By 1966, Oahe Dam was generating over two billion kilowatt-hours of electricity annually.

Although the Eisenhower administration cut funding for Oahe Dam construction in 1954, protests by the 10 Missouri valley states led to the funding being doubled compared with 1953.



In contrast to the huge embankment, long tunnels and mighty powerhouse at Oahe Dam, the dam's spillway was constructed in a relatively modest fashion. Oahe Dam's role of maintaining a large volume of storage space for floodwaters meant that its spillway would need to be put into service less often, as the Omaha District calculated, than once every 100 years. Due to the limited use envisioned for it, the district decided not to line the spillway with concrete or build a stilling basin for it. These economies reduced its costs by almost $25 million. The Omaha District had the earthen spillway built a mile west of the dam at the bottom of its one-on-three side slopes.

While Oahe Dam and its accompanying structures were nearly completed by 1964, the Corps continued to relocate transportation lines and public facilities around Lake Oahe, to develop recreational facilities along its shores and maintain the project. Oahe Dam provides flood control, electric power, irrigation control and aids in navigation, producing benefits estimated at $150 million annually.

Lake Oahe is one of the largest manmade lakes in the United States. With 2,250 miles of shoreline, it boasts more shoreline than the state of California.

Lake Oahe's 2,250-mile shoreline provides scenic beauty and recreational opportunities. The area offers the ideal habitat for migrating waterfowl, opportunities for wildlife observation, fishing, big game and waterfowl hunting, and public camping areas.

Setting the Stage

Big Bend Dam was the last of the Pick-Sloan dams built by the Corps on the Missouri River to receive appropriations from Congress. Located approximately 50 miles southeast of Pierre, S.D., the dam drew its name from the nearby 21-mile loop in the Missouri where the river inscribed an almost complete circle. The neck of the loop was only 1.5 miles wide. Part of Lewis and Clark's party had walked across the neck as did thousands of passengers during the steamboat era.

Congress provided initial funding for design studies at Big Bend in 1956. At first, the engineers considered building the dam at the upper end of the big bend and the powerhouse at its lower end, connecting the two by power tunnels running through the neck of the loop. However, they rejected that concept because of the inordinate length of the power tunnels that would be required and the foundation problems present at the dam. In 1958, the Corps decided instead to build a 102-foot-high dam at Fort Thompson.

Navigating Challenges

The Corps designed a flat, S-shaped, 17-million-cubic-yard earthen embankment that integrated with local features. Its unusual shape required less land than would an axial embankment, put the dam north of a potentially troublesome creek, and eliminated the need to relocate a number of families and an old Indian tribal cemetery.

Contractors began excavation work in May 1960 but not without obstacles. On occasion, high water impounded by Fort Randall Dam backed

Photo Left: *Big Bend Dam takes its name from the unique bend in the Missouri River seven miles upstream from the dam. At this point, the Missouri makes almost a complete loop, traveling 25 miles before returning to the "neck" where the land is only about one and one-half miles wide.*

Big Bend Dam

Construction start	1959
Construction complete	1963
Construction cost	$107.2 million
Type	Rolled earth
Height	95 feet
Length of top	10,570 feet

Big Bend Dam Power House

Total generating capacity	493,300 kilowatts
Number of generators	8

Lake Sharpe

Reservoir Length	80 miles
Shoreline	200 miles

Many workers who built the Big Bend Dam spillway came from missile jobs in Nebraska. Work on the powerhouse substructure alone involved as many as 1,300 workers, including up to 600 carpenters.

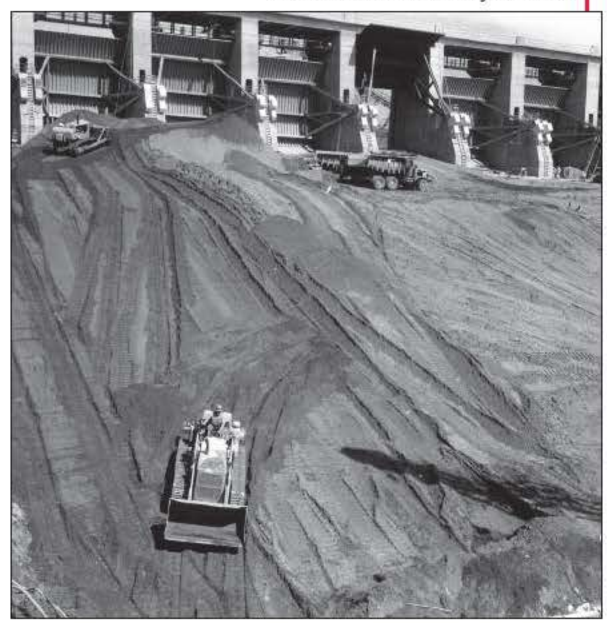
up to and over the partially completed Big Bend embankment and delayed work.

When construction began on the powerhouse, contractors employed as many as 1,300 workers, including up to 600 carpenters, pouring 385,000 cubic yards of concrete and using approximately seven million board feet of lumber just in the construction of concrete forms. The structure used approximately one million tons of aggregate. Once the powerhouse superstructure was complete and the turbines installed, work commenced on the spillway.

Big Bend Dam's 353-foot-long spillway required 108,000 cubic yards of concrete, 2,800 tons of reinforcing bars and 30 tons of anchor rods. Construction on the spillway progressed ahead of schedule even through workers went on strike, hoping for improved pay and benefits.

Working from the left bank, the contractor narrowed the Missouri's channel to 330 feet by July 1963. The surrounding main stem dams then helped with the closure operation. Garrison and Oahe Dams upstream cut the river's flow to

Site work during the construction of the Big Bend Dam involved holding river waters. At times, high waters impounded by Fort Randall downstream backed up to, and over, the partially completed Big Bend embankment and delayed work.



10,000 cubic feet per second, while Fort Randall and Gavins Point Dams downstream maintained their levels of outflow. This allowed navigation to continue unaffected by the operation.

Open for Business

The first of Big Bend Dam's generators began operation without fanfare on October 1, 1964. By 1967, all eight generators had been placed in service, and the dam began producing over 900 million kilowatt-hours of hydroelectric power annually.

Today, visitors can view many types of wildlife on the Missouri River at Lake Sharpe. Tribal bison herds can be seen grazing the lake area's grasslands north of the towns of Fort Thompson and Lower Brule. The shoreline areas offer excellent waterfowl, upland game birds and big game hunting opportunities such as ducks, geese, wild turkeys, whitetail and mule deer, elk and bison. Lake Sharpe also provides a popular attraction for fishing.

The Corps' design of Big Bend Dam worked well with the local features. Its unusual shape required less land and eliminated the need to relocate a number of families and an old Indian tribal cemetery.

Preparing for First Pick-Sloan Project

Fort Randall Dam was the first dam completed under the Pick-Sloan Plan by the Omaha District. In order to build the dam and the 150-mile-long reservoir it would impound, the Corps first had to provide access to the site for men, machines and materials. Lake Andes, S.D., located about eight miles from the damsite, was the nearest town with rail and highway connections. Corps workmen built a railroad to the damsite from the Chicago, Milwaukee, St. Paul and Pacific tracks at Lake Andes.

Like Fort Peck and Garrison Dams, Fort Randall Dam required a new town to house the people who would build and maintain it. From 1946 to 1950, the Omaha District built Pickstown, S.D., on a bluff east of the river at a cost of $9.5 million.

Laying the Foundation

The District decided to locate the dam's tunnels and outlet works on the left bank of the river. The tunnels could be drilled through solid chalk, which required less overburden to be removed. Needing to dredge a significant amount of material, the contractor used the portable dredge Western Chief, designed and built for the project in just 11 months. The Western Chief was the most powerful suction dredge of the day. Capable of developing 10,950 horsepower, it carried 1,500 tons on a 36-inch draft. By the end of 1951, the Western Chief had dredged approximately 2.4 million cubic yards of material out of the approach channel and tailrace. The approach channel directed the reservoir water to the power tunnels, and the tailrace carried the water from the generators back to the river channel.

Fort Randall Dam

Construction start	1946
Construction complete	1956
Construction cost	$200 million (including Lake Francis encasement)
Type	Rolled earth
Volume of earth fill	50,000,000 cubic yards
Volume of concrete	1,000,000 cubic yards
Height	165 feet
Width of crest	60 feet
Spillway gates	21 tainter
Length	10,700 feet

Fort Randall Powerplant

Total generating capacity	320,000 kilowatts
Number of generators	8
Type of generators	Allis Chalmers

Lake Francis Case

Water surface (at max. pool)	102,000 acres
Reservoir length (at normal pool)	107 miles
Maximum depth	140 feet
Shoreline length	540 miles

Photo Left: *Fort Randall Dam plays an important role in the successful operation of the six main stem dams and reservoirs on the Upper Missouri River.*

Four construction companies worked on the powerhouse and its generating equipment. When complete, the dam provided power north to Fort Thompson where Big Bend Dam would be built and south to Grand Island and Columbus, Nebraska. By the early 1970s, the dam was producing over 2 billion kilowatt-hours of electric power annually.

From May 1949 through the end of 1951, contractors worked on the 12 tunnels for the intake structure. Innovative thinking redirected the work from a line-drilling and blasting approach to one that incorporated a saw jumbo. The jumbo saved the contractor money because it reduced the normal six-inch margin of overbreak in half, so that the contractor didn't have to blast an unneeded three or four inches of diameter. The District saved money because it didn't have to pay a later contractor for three or four more inches of extra concrete down the length of the 12 tunnels.

In a separate contract, work began on the intake structure. The local batching plant mixed over 193,000 cubic yards of concrete – enough to lay 74 miles of two-lane highway. The chief of construction on Omaha District's Fort Randall staff, made sure that the quality of the concrete was carefully controlled. District personnel tested the ingredients that went into the concrete before it was mixed and closely monitored the temperature of the aggregate, again testing it when it was ready to be poured. By July 1952, the intake structure was ready to receive the Missouri.

Lake Francis Case provides numerous opportunities for outdoor recreation, drawing more than 2 million visitors to its shores each year.

Ready for Operation

The District used the Western Chief to pump a 200,000-cubic-yard stockpile of select chalk into a temporary dam to close the Missouri's natural channel and divert its water through the newly built intake structure and tunnels. This was the first use of the hydraulic placement method of closure in such a large project. The dredge placed the base of the weir in late April and May while 50,000 to 70,000 cubic feet per second of water rushed over it. The weir itself was built in July, a month after the Missouri's spring crest had passed. The river was closed at 1:10 p.m. on July 20, after 666,000 cubic yards of dredged material had been placed.

The last piece of the Fort Randall Dam project was the powerhouse and its generating equipment, with power flowing on March 15, 1954. President Dwight D. Eisenhower spoke over the radio from the White House to 600 people gathered in the Fort Randall powerhouse and then tapped a Western Union key to signal Governor Sigurd Anderson to start the generators. Anderson spun the giant turbine, and the dam's first generator began producing electricity.

By June 30, 1956, the Omaha District Engineer reported that the Fort Randall Project was 99 percent complete at a total cost of $183 million, almost 2.5 times as much as the original cost estimate. Within the preceding 12 months, the dam's generators had produced more than 1 billion kilowatt-hours of electricity. By the early 1970s, the dam was producing over 2 billion kilowatt-hours of electric power annually.

Fort Randall Military Post was built in 1856 just below the present site of the dam. It was abandoned 36 years later, but remnants of the old chalkstone chapel – recently refurbished – greet visitors today.

Last Stop in Flood Control

Located just four miles west of Yankton, S.D., Gavins Point Dam is the southern-most main stem dam. It plays a critical role in regulating river levels to serve commercial navigation and to reduce bank erosion downstream.

The smallest of the Corps' dams on the Missouri, it is a fairly simple earthen structure accompanied by a powerhouse, three power intakes and a concrete spillway designed to handle any high water. Both the powerhouse and spillway were located on the Nebraska shore, and the embankment was extended from there.

While the other Pick-Sloan dams upstream operate efficiently only when water flows through their power tunnels at near capacity levels, Gavins Point allows for the efficient production of electricity at widely varying levels of river flow.

Under Construction

The contractor broke ground at the dam site on May 18, 1952, in a ceremony that included Lieutenant General Lewis Pick, then Chief of Engineers, and the governors of South Dakota and Nebraska. A consortium of contractors undertook the largest portion of the construction at Gavins Point Dam under a $17.5 million contract.

The contract included constructing the spillway and the powerhouse substructure as well as completion of the embankment. By keeping the dam's size small and concentrating its facilities on the Nebraska shore, the Corps reduced

Photo Left: *Gavins Point Dam is one of six dams along the Missouri River that were built under the Flood Control Act of 1944 and the southernmost along the dam system.*

Gavins Point Dam

Construction start	1952
Construction complete	1957
Construction cost	$50 million
Type	rolled earth and chalk fill
Volume of earth fill	7,000,000 cubic yards
Volume of concrete	308,000 cubic yards
Height	74 feet
Width of crest	35 feet
Spillway gates	14 tainter
Length	8,700 feet

Gavins Point Powerplant

Total generating capacity	132,297 kilowatts
Number of generators	3
Type of generators	Kaplan

Lewis and Clark Lake

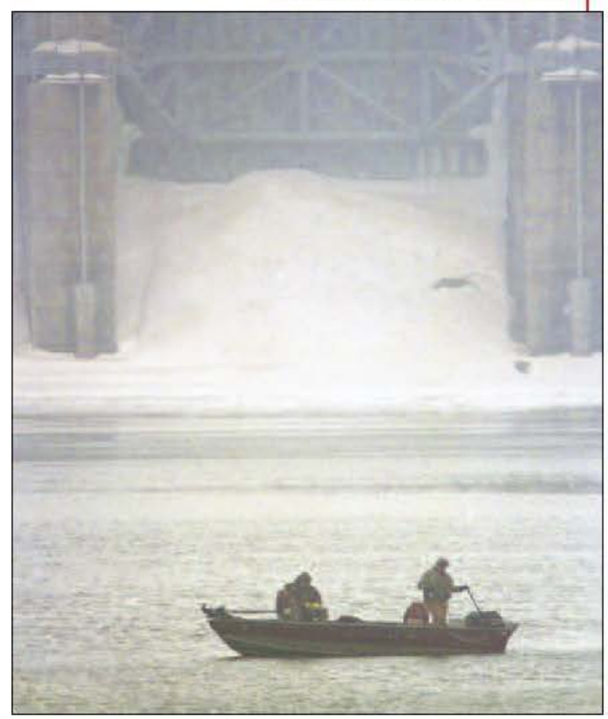
Water surface (at max. pool)	31,400 acres
Reservoir length (at normal pool)	28 miles
Maximum depth	45 feet
Shoreline length	90 miles

Water released from the five upstream dams is used at Gavins Point for producing hydroelectric power. Controlled releases from the dam enhance navigation and minimize erosion on the Missouri River to St. Louis, Mo.

access problems for the site. The contractor could not immediately begin construction on the embankment as previously planned, because the Missouri's 1952 spring floods had moved the river at the dam site into a new channel carved into the Nebraska shore. The river was restored to its former course by constructing a long dike which roughly followed the right side of the former channel.

In September 1954, the Omaha District awarded a $4 million contract to build the powerhouse proper and to install its turbines and transformer yard. Six months later, the Corps decided on the procedure to close Gavins Point Dam. The approach involved using Fort Randall Dam to reduce the Missouri's flow substantially and then have the contractor dump earth from the embankment into the ever-narrowing channel of the Missouri.

Lewis & Clark Lake offers great year-round fishing opportunities. Public camping areas surround the lake both above and below the dam.



With the powerhouse tubes, intake gates and spillway ready to handle the Missouri's waters, the five-day closure operation got underway in July 1955. During the first three days of the operation, the contractor used 6,000 cubic yards of material stockpiled on the embankment to further reduce the width of the river's channel from 600 feet to 150 feet. Once this had been accomplished, Corps officials used Fort Randall Dam to reduce the Missouri's flow to 7,000 cubic feet per second. The contractor then put two large draglines into operation to pinch off the river from both banks.

50 Years of Power and Conservation

Gavins Point Dam began producing electricity for customers in South Dakota and Nebraska in September 1956. All three of its generators were in operation early the following year. Water released from five upstream dams is used at Gavins Point for production of hydroelectric power. The dam's generators provide enough electricity to meet the annual needs of 68,000 homes.

Controlled releases from the dam enhance navigation and minimize erosion on the Missouri River south to St. Louis, Mo. Gavins Point Dam and the accompanying Lewis and Clark Lake provide $61 million in benefits to the public annually, including power generation, flood control, recreation, navigation support, and fish and wildlife enhancement.

Gavins Point Dam lacks the flood control tunnels of the earlier main stem dams. Instead, it includes a spillway designed to handle water of any height.

In addition to the main stem projects and navigation mission throughout the Missouri River basin, the District manages both large and small projects throughout its entire Civil Works program. In particular, Omaha teams constructed major projects in Colorado during the early days of the District.

One River, Three Controls

Located in the shadows of the Rocky Mountains and urban skyscrapers of the Denver metropolitan area, the Tri-Lakes Project includes Cherry Creek, Chatfield and Bear Creek dams and lakes. The three dams protect the region from the ravages of catastrophic South Platte River floodwaters that have plagued the area for more than 100 years.

The discovery of gold drew the first settlers to the Tri-Lakes area in 1858. Those settlers built Denver in a floodplain despite warnings from Indians that it would be "bad medicine" to do so. The flooding that ensued over the next 100 years lent credence to the Indians' warning. Major floods hit the area hard and often between 1864 and 1965.

The Tri-Lakes system has prevented nearly $170 million in flood damages, exceeding the $162 million total construction cost of the three sites. The recreational and environmental benefits provided by the triad greatly enhance tourism in a state whose calling card highlights its recreational opportunities and natural beauty.

Cherry Creek

Cherry Creek Dam was the first of the three dams to be built, with construction beginning in 1948 and completed in 1950. Cherry Creek Lake is 1.5 miles long, has eight miles of shoreline, and has a maximum depth of 26 feet.

Chatfield

Chatfield Dam was the second dam built, with construction beginning in 1967 and completed in 1975. Chatfield Lake is two miles long and has an average depth of 47 feet.

Bear Creek

The last of the three Tri-Lake Project dams to be built, Bear Creek Dam, received authorization to construct in 1968 and was completed in 1982. The dam was completed in two segments including the main embankment and the south embankment. Bear Creek Lake is less than one mile long and has an average depth of 48 feet.

Bear Creek Spillway

Cherry Creek Dam

Type	Rolled earth fill
Height	141 feet
Width of crest	30 feet
Spillway type	Open channel
Length	14,300 feet

Chatfield Dam

Type	Rolled earth fill
Height	147 feet
Width of crest	30 feet
Spillway type	Ungated chute
Length	13,136 feet

Bear Creek Dam

Type	Rolled earth fill
Height main embankment	179.5 feet
Height south embankment	65 feet
Width of crest main embankment	30 feet
Width of crest south embankment	30 feet
Spillway type	Earthen cut
Length main embankment	5,300 feet
Length south embankment	2,100 feet

Photo Left: *The Tri-Lakes Project provides flood-risk management for the greater Denver area in addition to ample recreation opportunities for boaters, fishermen, campers and anyone who enjoys the outdoors.*

Making Its Own Way

The Missouri is a river that has proven it will find its own way, either causing damage through burgeoning flood waters or contracting through severe drought. The U.S. Army Corps of Engineers began its official work in navigation as it relates to the Missouri as early as 1882. Originally part of the Kansas City District, navigation crews have carried out improvement projects on the entire navigable stretch of the Missouri and its tributaries. But with a booming population in the region and even greater growth in commerce and industry, the river still ran unchecked.

New Direction for Navigation

When the Omaha District formed in 1934, it was time to move the program north. Drought that started in 1931 ended up lasting a decade. The Omaha District's first commander faced the challenge of having to generate enough water flow past Kansas City to fill a six-foot channel. But he also watched as farmland along the river failed to produce crops because of a lack of water to irrigate.

In the past 75 years, flood control legislation has enabled Omaha crews to "train" the Missouri River. At times more than 15 miles wide, it was necessary to create a manageable width, depth and speed on the river that maintained a reliable flow and steady depth without generating a high velocity, destroying natural habitat or endangering wildlife.

The mission of the Omaha District's Navigation program is to provide bank stabilization along a 232-mile route from Sioux City, Iowa, to Rulo, Neb., and provide a 300-foot-wide by nine-foot-deep channel for navigation. As part of this work, crews have placed over one million tons of rock in a single year to stabilize structures and currently places anywhere from 15,000 to 40,000 tons a year for maintenance.

History Repeats Itself

Since the 1970s, the Missouri has again experienced drought, which has proven particularly severe since 2000. During the last nine years, the Corps has operated under controlled releases and minimal service. With an abundance of rain in 2009, the river has returned to full-service navigation from Sioux City, Iowa, to Kansas City, Mo.

Photo Left: *The Omaha District's navigation group works closely with the Missouri River Recovery program to maintain navigation on the river while returning the area as much as possible to its natural ecosystem. This enables business, industry and wildlife to all thrive in the same environment.*

The Nation's River

At 2,300 miles, the Missouri River is the nation's longest river, spanning from Three Forks, Mont., to St. Louis, Mo. Nicknamed the "Center of Life" for the Great Plains, the river has historically been considered the Gateway to the West.

The violent floods that resulted from spring melt and heavy rainfall created erosion and muddy water. As a result, Congress charged the Corps to manage the river for social and economic benefits by removing snags, protecting banks, constructing navigation channels and building flood management structures through an integrated recovery program.

Recovering the River

Today, the Missouri River hosts a wide variety of interests and uses, all of which are considered and addressed in the river's recovery program. They include social, economic, historical and cultural uses such as agriculture, commerce, conservation, energy, environmental, natural resources, navigation, recreation, residential, urban uses and water supply.

The impact of these uses has resulted in significant environmental consequences to the Missouri River ecosystem, including:

- Three million acres of natural river habitat altered
- 51 of 67 native fish species now rare, uncommon or decreasing
- Reproduction of cottonwoods, historically the dominant floodplain tree, has largely ceased
- Aquatic insects, a key link in the food chain, reduced by 70 percent

Photo Left: *The Missouri River Recovery Program seeks to restore the Missouri River ecosystem. This includes creating backwaters for spawning grounds and sandbars for nesting areas for threatened and endangered species.*

Missouri River Recovery Implementation Committee

There's no question that managing the Missouri River is a complicated endeavor. Equally challenging is finding a common ground for diverse groups who have an interest in the future of the Missouri River basin.

In the past several years, the Omaha District has undertaken the Missouri River Ecosystem Program. One of the largest of its kind in the nation, this study takes a comprehensive look at the entire ecosystem of the Missouri River basin and what is required to restore the ecosystem.

As part of this work, the Secretary of the Army established the Missouri River Recovery Implementation Committee (MRRIC) in 2008. The committee brings together 66 stakeholders, including federal and state agencies, tribal representatives and additional participants that represent 16 additional interests in the Missouri River.

This collaborative effort taps the full spectrum of expertise from the Omaha District in working with the stakeholders and ensuring that the committee creates a future for the Missouri River that respects the interests of everyone involved.

The Pallid Sturgeon is unique to the waters of the Missouri and lower Mississippi River Basins of the United States. Named for its pale color, the fish takes 15 years to mature, spawns infrequently and can live up to 100 years. The USFWS placed the Pallid Sturgeon on the endangered species list in 1990.

Partners for Progress

The Corps and the U.S. Fish and Wildlife Service (USFWS), in partnership with Tribal nations, states and other agencies, now work together to develop and implement recovery actions. As part of this work, the USFWS developed a Biological Opinion in 2003 to protect the three threatened and endangered species that depend on the Missouri River following the construction of the series of upstream dams: the Least Tern, the Piping Plover and the Pallid Sturgeon. The river doesn't naturally build habitats for these shore birds that use sandbars and beaches for nesting. In addition, loss of habitat and changes to natural flows has contributed to the decline of the Pallid Sturgeon, an ancient species that lives in large rivers.

The Corps also developed a substantial Mitigation Project to acquire the land needed to develop fish and wildlife habitat from Sioux City, Iowa, to St. Louis, Mo. The four pillars of the recovery program include habitat creation, flow modifications, science, and public involvement.

The Missouri River Recovery Program seeks to create a sustainable ecosystem that supports thriving populations of native species while providing for current social and economic values.

This Least Tern mother feeds her chicks along the shores of the Missouri River. These small birds depend on the sandbars of the Missouri River habitat for nesting.

Habitat Creation

As part of the key recovery initiatives, the Corps worked with the Nebraska Game & Parks Commission to create a backwater environment for the Pallid Sturgeon and sand bars for the Least Terns and Piping Plovers near Ponca State Park in northeast Nebraska.

Since the construction of dams upstream along the Missouri, the river no longer has the sediment load that used to create natural sand islands. As part of the recovery program, the Corps removed sediment from backwaters to facilitate spawning grounds for the Pallid Sturgeon and create sandbars which provide nesting areas for the Least Terns and Piping Plovers.

Since the backwaters are adjacent to Ponca State Park, hikers can now take advantage of trails that approach the site to view wildlife. Those who prefer to canoe can put their canoes in directly from the State Park and quietly explore the backwaters.

The 2,300-mile long Missouri River provides a home to a complex and varied range of habitat. By working with stakeholders interested in the future of the basin, the Omaha District has created a common ground for everyone to voice their ideas and plan for the future of the river together.

The Future of the Missouri River

Activities to restore the natural form and function of some of the Missouri River ecosystem will continue for decades. Along the way, the projects have spotlighted the expertise of the Omaha District and illustrate the breadth and depth of our people. From community planners and engineers to contracting, real estate and construction experts, the District has developed a collaborative relationship through the Missouri River Recovery Implementation Committee. Although the river will never be brought back to the wild, untamed form encountered by Lewis and Clark, this group of 66 stakeholders on the committee is working to revitalize the ecosystem for the benefit of all the basin's inhabitants.

The construction of the six main stem dams on the Missouri River dramatically altered life for indigenous Tribal people in the area. "Gone are many of our ancient, river-bottom homes, our medicines, our sacred places, the earth lodge, tipi village and hunting camp sites created by our loved ones," the Native Americans wrote.

In its more than 200-year history, the U.S. Army Corps of Engineers and the Tribes have experienced interactions that have proven positive and beneficial to everyone involved. However, that has not always been the case. To some Tribal communities throughout the area, many of the earlier exchanges seemed acrimonious and one-sided, often to the detriment of the Native Americans on whose lands Corps projects reside.

During the mid-nineteenth century, the U.S. Government attempted to solidify its relationship and uphold its responsibilities to the Indians, with varying degrees of success, through treaties, legislation and executive orders.

In the latter half of the twentieth century, much of the work to develop master plans for the operation of the Missouri River revisited many old, and sometimes bitter, issues related to the Tribes. In 1987, the Joint Tribal Advisory Committee developed a final report that outlined the impact of the Pick-Sloan Plan on the Tribes. Seeking greater involvement in the management of the Missouri River basin than what had been realized during this period, the Tribes within the Omaha District sought an "Indian desk" at the Corps in order for Tribal representatives to have better access to, and involvement with the Omaha District.

Looking to build a true partnership, the District responded.

In 1992, it developed and assigned a full-time Native American Liaison, the first of its kind within the Corps. By establishing this position, the District has received greater visibility and accountability on issues that affect Native American interests and cultural resources. The liaison has also created a new way for the Corps, Tribes and other agencies to resolve problems and work in a manner responsive to the Tribes and their unique status as sovereign nations.

Today, the Corps has established similar liaison positions across its districts to promote this nation-to-nation relationship. As a result, awareness of Tribal perspectives has seen numerous improvements since the early 1990s, and the Omaha District continues to progress in enhancing its working relationship with the Tribes.

Photo Left: *The Omaha District works proactively with the Tribes throughout the basin on projects that affect their nations.*

Congressional Record

PROCEEDINGS AND DEBATES OF THE 111^{th} CONGRESS, FIRST SESSION

WASHINGTON, THURSDAY, MAY 21, 2009

House of Representatives

Honoring the 75th Anniversary of the Establishment of The Omaha District of the U.S. Army Corps of Engineers

HON. LEE TERRY
OF NEBRASKA
IN THE HOUSE OF REPRESENTATIVES
Thursday, May 21, 2009

Mr. Terry of Nebraska. Madam Speaker, I rise today to honor the establishment of the Omaha District of the U.S. Army Corps of Engineers 75 years ago. Since that time, the Omaha District of the Corps has performed admirably in a wide range of duties, and today manages more than a billion dollars worth of civil works, military construction, and environmental restoration projects. Members of the Omaha District of the U.S. Army Corps of Engineers currently serve in Afghanistan and Iraq as part of the Global War on Terror.

When the Omaha District was established in 1934, its initial mission was the construction of the Fort Peck Dam in Montana. That project was the first of many that resulted in the construction of a total of 6 dams along the main stem of the Missouri River that provided necessary jobs during the Great Depression. This was just part of the Corps' efforts to harness the mighty Missouri River basin through construction of a vast set of engineering projects which control flooding, facilitate commerce by improving navigation, generate electricity, and spur agriculture. These projects evolved into a flood control system that has prevented over $25 billion in flood damages to date.

During World War II and the Cold War, the Omaha District of the U.S. Army Corps of Engineers was involved in numerous aspects of our nation's defense. It constructed the assembly plant for the B-29 Superfortress and the B-26 Marauder, and gained technical expertise in constructing runways which proved valuable for Army Air Force Training. The Omaha District also was involved in the construction of the Northern Area Defense Command in Colorado, facilities for Space Command, and various missile control and launch facilities throughout the Midwest. Following the Cold War, the Omaha District helped lead on environmental remediation by removing ordnance from closed bombing ranges, containing below ground chemical plumes, and remediating landfills and wetlands.

In 1982, the Corps added environmental cleanup to its mission. Since that time the Corps has provided technical expertise to the Environmental Protection Agency's Superfund clean up projects. In fact, the Corps' Omaha District became the Center of Expertise for Hazardous and Toxic Waste. Individuals trained at this facility have assisted in EPA environmental clean up of projects in California and Pennsylvania. The Omaha District continues to take the lead in remediation of hazardous, toxic, and radioactive waste sites in current and former military sites.

For 75 years, the Omaha District has answered the nation's call for service. I commend the Omaha District Corps' continued commitment to military construction, improving civil works and environmental restoration both in Nebraska and throughout our nation under the current leadership of Colonel David Press. The Omaha District of the U.S. Corps of Engineers has earned the recognition of Congress on the celebration of the 75th Anniversary of its founding.

Congressional Record

PROCEEDINGS AND DEBATES OF THE 111^{th} CONGRESS, FIRST SESSION

Vol. 155 WASHINGTON, TUESDAY, JUNE 9, 2009 No. 19

Senate

IN RECOGNITION OF U.S. ARMY CORPS OF ENGINEERS–OMAHA DISTRICT

Mr. NELSON of Nebraska. Mr./Madam President, I rise today to recognize the 75th anniversary year of the establishment of the Omaha District as part of the U.S. Army Corps of Engineers.

Established on January 2, 1934, the immediate mission of the Omaha District was the creation of Fort Peck Dam in Montana, which was the first of six multipurpose main stem dams operating as part of a flood control system on the upper Missouri River. After completing the Fort Peck Dam, the Corps, operating under the Pick-Sloan Plan, went on to build the other five main stem structures on the Upper Missouri River. The Plan called for a coordinated effort with the Bureau of Reclamation for irrigation projects, flood control, navigation, and recreation facilities.

In the early 1940s, the Omaha District added military construction to its mission. Its first task was construction of Lowry Field in Colorado. Since then, the Omaha District has been involved in the construction of several historic projects, such as the Northern Area Defense Command in Cheyenne Mountain, Colorado; various missile control and launch facilities throughout the Midwest; and facilities for Space Command.

As the Cold War ended in the 1980s, the national focus switched to a stronger set of environmental principles. The Omaha District readily adopted a "green" program, providing outstanding leadership in environmental remediation. Today, the Omaha District is managing one of the largest Base Realignment and Closure and "Grow the Army" initiatives in the nation.

For more than 75 years, the men and women of the Omaha District have served their country by harnessing the mighty Missouri River basin, building state-of-the-art facilities to serve our military, and recovering the earth from hazardous toxic and radioactive waste.

It is only fitting that we in the United States Senate recognize the impressive achievements of the U.S. Army Corps of Engineers–Omaha District during its 75th year.

STATEMENT FOR THE RECORD

I rise today to commemorate the 75th anniversary of the founding of the Omaha District of the Army Corps of Engineers in Omaha, Nebraska.

From its original mission in the 1930's working on flood control projects on the Missouri River, including the building of the Fort Peck Dam, to its contemporary work in support of our Nation's military mission in Iraq and Afghanistan, the Omaha District has served the citizens of the State of Nebraska and the United States of America with pride and distinction.

I especially note the contribution that the Corps has made every day since its inception managing and protecting Nebraska's precious water resources. Without the dedicated efforts of all of the men and women of the U.S. Army Corps of Engineers Omaha District, citizens in the State of Nebraska would: (1) be vulnerable to extensive flooding, (2) would lack abundant recreational opportunities and preservation of critical wildlife habitat, and (3) would face much higher electric energy bills. It is estimated that as a result of the work of the Omaha District of the U.S. Army Corps of Engineers, more than $25 billion dollars of property damage due to flooding has been averted during its distinguished history of the Omaha District.

I also note with extreme pride the important contribution that the Omaha District has made over the years to the success of our armed forces. The Omaha District was responsible for the construction of what later became known as Offutt Air Force Base. Offutt Air Force Base was the home of the Glenn L. Martin Co. Bomber Plant, which manufactured the B-29 "Superfortress" and the B-26 "Marauder" airplanes. Other more recent noteworthy projects have included work on the North American Air Defense Command headquarters at Cheyenne Mountain, construction of various missile controls and launch facilities throughout the Midwest, building of hangar facilities for B-2 "Stealth" bombers, and other important projects for military purposes in Nebraska and for foreign deployments.

Again I thank the thousands of Omaha District employees who have dedicated their careers to serving the military and civilian needs of the State of Nebraska and the United States of America.

STATE OF NEBRASKA

Proclamation

WHEREAS, *The Omaha District of the United States Army Corps of Engineers was established on the 2nd day of January 1934 in Omaha, Nebraska; and*

WHEREAS, *The Omaha District exists to defend the freedom of our citizens and provide engineering solutions to water and environmental challenges; and*

WHEREAS, *The citizens of Nebraska have benefitted from the dedication, professionalism, expertise and commitment of the members of the Omaha District in water resources, environmental restoration, and design and construction for the United States Army and United States Air Force for 75 years; and*

WHEREAS, *It is proper to recognize the Omaha District of the United States Army Corps of Engineers on its birthday, and to thank those who have served and those who are presently serving, both here in the United States and overseas in Iraq and Afghanistan.*

NOW, THEREFORE, *I, Dave Heineman, Governor of the State of Nebraska, DO HEREBY PROCLAIM the 2nd day of January 2009, as the Omaha District's 75th birthday and declare the period from June 1st through the 7th, 2009, as Omaha District Week. I exhort all citizens to join with me in this salute as we express our gratitude to those who have served and those who are now serving to protect our nation and benefit our citizens.*

RECOGNITION OF THE BIRTHDAY OF THE OMAHA DISTRICT OF THE U.S. ARMY CORPS OF ENGINEERS

in Nebraska, and I do hereby urge all citizens to take due note of the observance.

IN WITNESS WHEREOF, I have hereunto set my hand, and cause the Great Seal of the State of Nebraska to be affixed this eleventh day of May, in the year of our Lord Two Thousand Nine.

Attest:

Secretary of State

Governor

1929

Beginning of the Great Depression.

1934

Formation of the U.S. Army Corps of Engineers, Omaha District. Civil Works construction begins creating thousands of jobs for skilled yet desperate citizens.

1939-1945

World War II generated extensive construction by the Omaha District to support U.S. troops both overseas and at home. With Allied victory came the beginning of the Cold War between the United States and Russia. Military construction shifted from the U.S. Army Quartermaster group to the U.S. Army Corps of Engineers.

1944

Passage of the Pick-Sloan Act into the Flood Control Act of 1944 leads to the design and construction of six main stem dams and many other efforts to manage the risk of floods in the Missouri River basin.

1950-1953

The Korean War accelerates Omaha District's MILCON program to support heavy bombers needed during the war, and upgrades and enhancements to numerous base structures.

1958

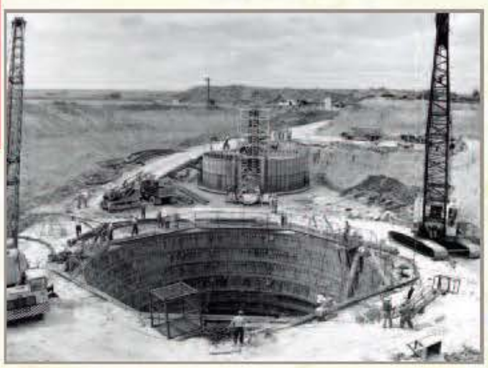
Construction completed on the U. S. Air Force Academy in Colorado Springs, Colo. Facility used to educate, train and develop future leaders for the U.S. Air Force.

1959-1975

Vietnam War draws U.S. involvement to stop the spread of communism.

1962

Cuban Missile Crisis. One of the major confrontations of the Cold War during which the world came closest to experiencing a nuclear war.



1966

NORAD Combat Center in Cheyenne Mountain becomes fully operational in response to heightened threats, particularly nuclear weapons, during the Cold War. Unique construction requirements led to the establishment of the Omaha District's Special Projects group.

1970

National Environmental Policy Act creates the Environmental Protection Agency (EPA).

1979-1989

Soviet War in Afghanistan. U.S. involvement supported the mujahideen resistance in order to prevent Soviet expansion into Afghanistan.

1980

Passage of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) that provided a $1.8 billion "Superfund" for toxic and hazardous waste cleanup over five years.

1982

Omaha and Kansas City Districts win open competition to serve as the Corps' Mandatory Center of Expertise for Hazardous, Radioactive and Toxic Waste (HTW) cleanups.

1983

Strategic Arms Reduction Treaty (START) talks begin to address nuclear disarmament between the United States and Russia.

1984

U.S. Government creates the Defense Environmental Restoration Program (DERP) to respond to hazardous and toxic waste problems at Department of Defense installations, including formerly used sites.

1990

The Department of Defense develops and implements an extensive base realignment and closure (BRAC) program to adjust to post-war defense needs.

1991

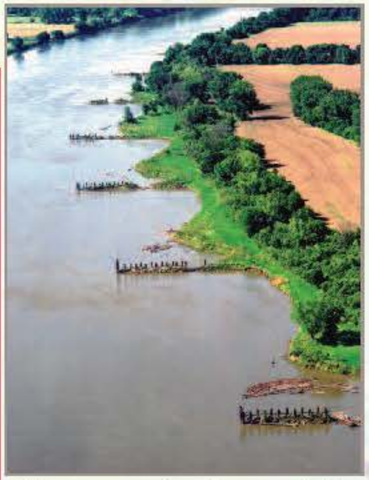
National coup results in the collapse of the Soviet Union.

1998

U.S. Green Building Council develops the Leadership in Energy and Environmental Design (LEED) standards. The Omaha District requires all facilities to be designed and constructed to a minimum of silver standard.

September 11, 2001

The terrorist attacks on the World Trade Center and Pentagon led to President George W. Bush's focus on the Global War on Terrorism. Under President Barrack Obama, the initiative is renamed in 2009 to the Overseas Contingency Operation.



2008

The Missouri River Ecosystem Program led to the 2008 establishment of the Missouri River Recovery Implementation Committee that uses input from stakeholders to create future operations for the Missouri River Basin.

2009

Omaha District celebrates 75 years of delivering outstanding projects, products and services.

2007

President George W. Bush requests a 74,200 soldier increase in Army strength as part of Grow the Army. This initiative leads to significant growth to the District's MILCON mission.

2008

Fort Carson's Brigade Headquarters received recognition as the Army's first LEED Gold facility in the world.

Offutt's Air Force Weather Agency Headquarters received recognition as the Air Force's first LEED Gold facility.


Mission · Soldier · Family · Team

Mission · Soldier · Family · Team


Chapter Two

Military Projects

With World War II came the advent of the Omaha District's military group. Previously under the Army's Quartermaster Corps, the mission was transferred to the U.S. Army Corps of Engineers. Teams came together and ramped up to bolster the war effort by building bases that provided support for training programs and building airplanes.

Today, the Corps is the design and construction agent for the U.S. Army and the U.S. Air Force. The Omaha District's key military focus is the design, construction and revitalization of facilities essential to our nation's defense and the overseas contingency operations.

Over the past 75 years, Omaha District crews have been responsible for the design, construction, and operations and maintenance of facilities that prepare and care for the military personnel that keep our country safe. From Strategic Air Command Headquarters in Bellevue, Neb., to the Air Force Academy in Colorado Springs, Colo., the District has proven itself capable of delivering the expertise necessary to produce the complex facilities that make protecting our nation possible.

Across the country and throughout the decades, other U.S. Army Corps of Engineers Districts and branches of the military have repeatedly turned to the Omaha District for its unparalleled expertise in building structures, roads, runways and railroads that meet the needs of the changing dynamics of protecting our people and our property at home and abroad.

Photos Left: *The Military Construction mission of the Omaha District has included some of the country's most high-profile, complex and significant projects. All have supported our nation's defense by providing the facilities that enable both military personnel and civilians to uphold their responsibilities to our country.*

Cold War Defense

At the height of the Cold War in the late 1950s, the idea of a hardened command and control center was conceptualized as a defense against long-range Soviet bombers. The Omaha District supervised the excavation of Cheyenne Mountain and the construction of an operational center within the granite mountain. The Cheyenne Mountain facility became fully operational as the NORAD (North American Defense Command) Combat Center on April 20, 1966.

Previously, NORAD had its headquarters in the old hospital at Ent Air Force Base in Colorado Springs, Colo. Even though it could scan the skies of the northern hemisphere for signs of aggression against the United States, NORAD itself was vulnerable to any kind of attack.

Proactive Defense

Cheyenne Mountain Air Force Base (CMAFB) is the underground command center of the North American AeroSpace Defense and United States Space Commands. Sharing the complex with NORAD are the Missile Warning and Space Defense Operations Center, Space Surveillance Center, Air Defense Operations Center and a Civil Defense National Warning Center.

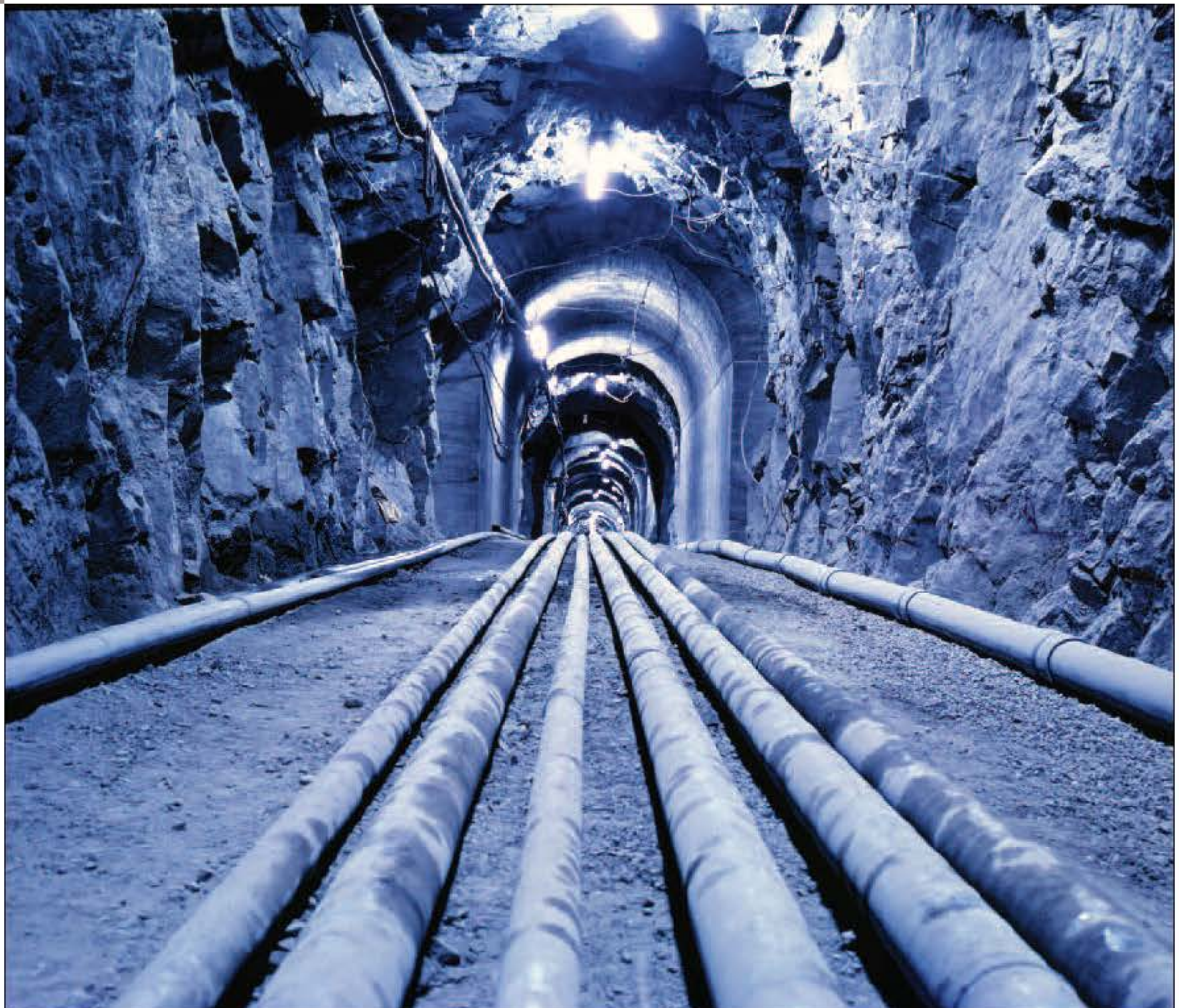
Operated jointly by the United States and Canada, the mission of CMAFB is to provide a survivable, self-sustaining command and control facility where CINCNORAD/USCINCSPACE can execute the NORAD/USSPACECOM-directed missions of attack warning, space surveillance and air sovereignty during peacetime and increased defense conditions.

Men at Work

Excavation began in and crews prepared to remove one-million cubic yards of granite. If laid as cubic-yard blocks, the excavated rock would have reached from New York City to Washington, D.C. A new method of blasting was required in order to maintain the integrity of the mountain's granite; this was a key element of planning because the structure would be among the first targets in a nuclear war. The contractor used a new technique of smooth-blasting, a method that left the tunnel interiors relatively free of projections and put minimal stress on the rock.

Construction of the steel buildings required spring-mounts to resist the shock of a nuclear explosion. The buildings themselves were mounted on huge coil springs similar to bedsprings and shock absorbers. With the total structure mounted in this way, weights within the structure could be adjusted to keep even compression on the springs. Each building was connected to the others with flexible

Photo Left: *NORAD is a joint command of the Army, Navy, Air Force and Royal Canadian Air Force. The facility required five years of planning and five more years of construction to build 11 structures, a utilities system and three miles of tunnel. NORAD was located within Cheyenne Mountain from April 1966 until May 2008. The complex now serves as NORAD and USNORTHCOM's Alternate Command Center.*



Truck-size tunnels and building-size chambers were blasted from granite for NORAD in one of the district's great engineering and construction project achievements. The district continues to perform engineering work for NORAD.

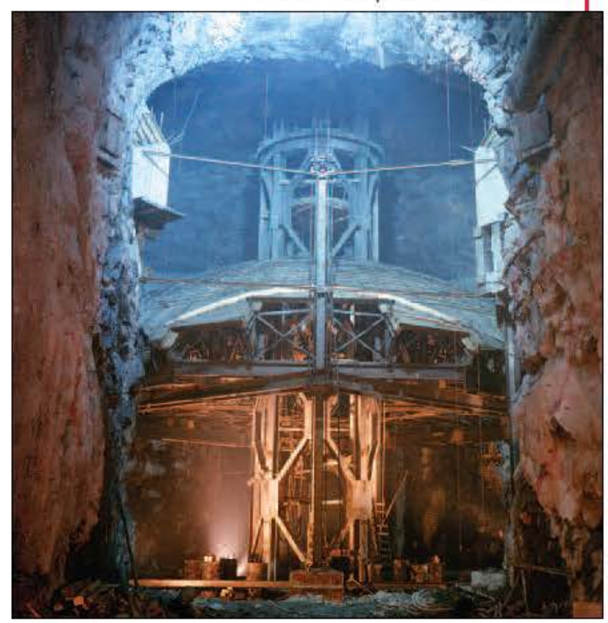
individual walkways to resist shock, but each building moves independently of its neighbors.

Fortress Within the Mountain

The main entrance to Cheyenne Mountain is approximately one-third of a mile from the north portal through a tunnel that leads to a pair of steel-framed, reinforced concrete blast doors. Behind these doors is a steel building complex built within a 4.5-acre grid of excavated chambers and tunnels. Fifteen buildings, freestanding without contact with the rock walls or roofs and joined by flexible vestibule connects, make up the inner complex. Eleven of these buildings are three stories tall; the others one- and two-story structures.

Shells of the buildings are made of 3/8-inch, continuously welded low-carbon steel plates supported by structural steel frames. Metal walls and tunnels serve to mitigate electromagnetic pulse.

At the intersection of chambers B and 2, construction crews designed and built a 134-foot concrete dome that relieved pressure on the fault in this area. The rock was reasonably stable under static conditions, but under dynamic conditions created by a nuclear blast or an earthquake, it could shear and shatter. The intersection required reinforcement.



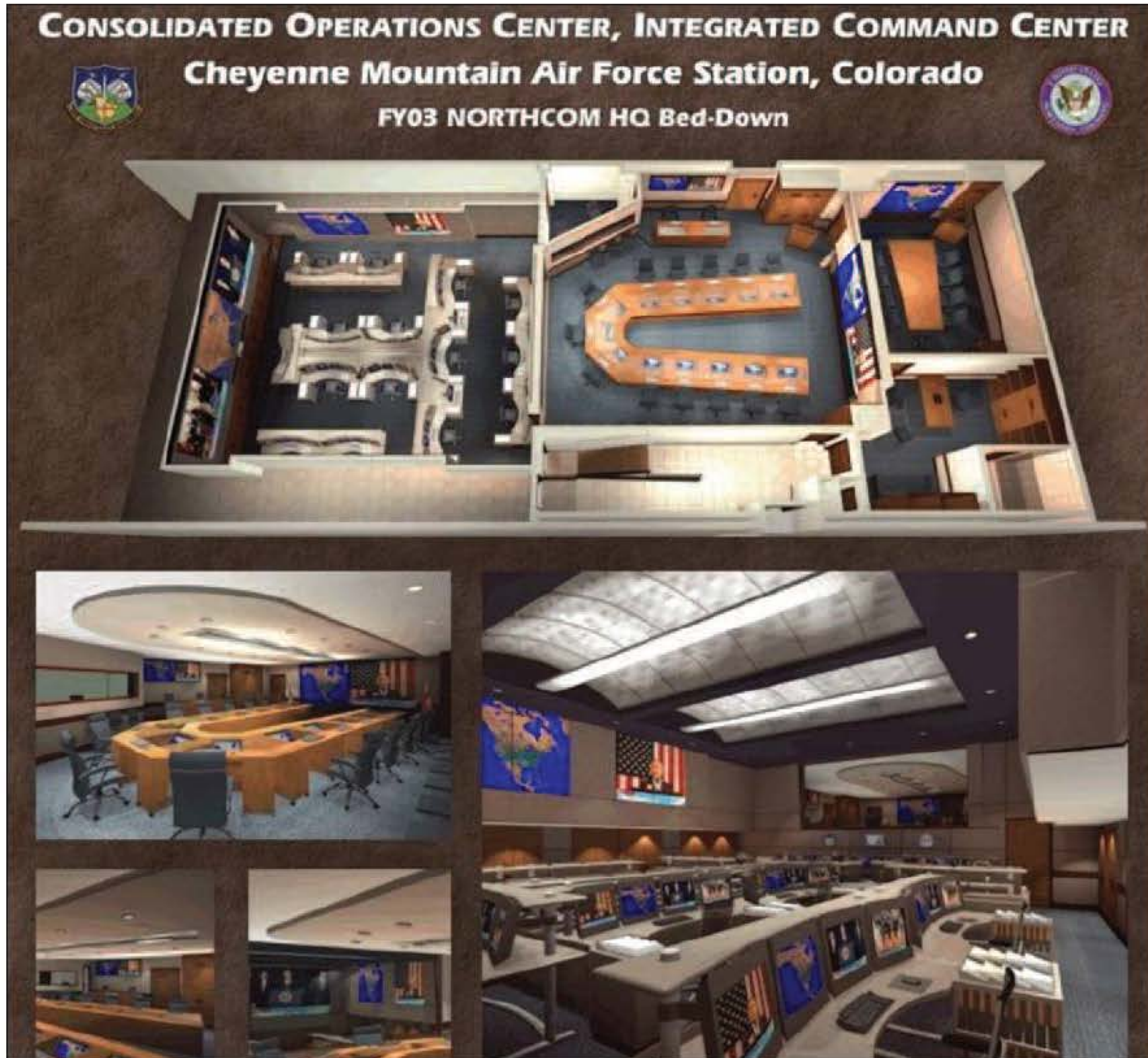
Metal doors at each building entrance serve as fire doors to help contain fire and smoke.

While design of the structure emphasized protection from the effects of nuclear weapons, it also makes it possible for the complex to absorb the shocks of earthquakes. Sets of blast valves, installed in reinforced concrete bulkheads, have been placed in the exhaust and air intake supply, as well as water, fuel and sewer lines. Sensors at the two portal entrances can detect overpressure waves from a nuclear explosion, causing the valves to close and protect the center.

Incoming air may be filtered through a system of chemical/biological/radiological filters to remove harmful germs and/or radioactive and chemical particulates. The fresh air intake is mainly from the south access tunnel, which is linked to the north access tunnel. The entire tunnel from north to south entry portals is 4,678 feet long. If needed, the entire complex could button up and remain self-sufficient and isolated from the outside (except for communications) for up to 30 days.

NORAD Today

On the fiftieth anniversary of the NORAD agreement, May 12, 2008, the Command Center was officially re-designated as the NORAD and USNORTHCOM Alternate Command Center. The Cheyenne Mountain Division of NORAD and USNORTHCOM was re-designated as the J36 branch within the NORAD and USNORTHCOM's Operations Directories. Today, the Cheyenne Mountain Complex serves as NORAD and USNORTHCOM'S Alternate Command Center and as a training site for crew qualification.



The Omaha District tripled the size of the Integrated Command Center within Cheyenne Mountain Air Force Base after 9/11. The facility is where the U.S. military and Canadian air force provide updates to the President of the United States and the Department of Defense in the event of an emergency.

New Threat, New Defense

After World War II, Russia became a superpower and the Cold War launched a new era of military threats and deterrents, the Omaha District built the North American Defense (NORAD) Command Center within Cheyenne Mountain as a defense against long-range Soviet bombers. But the nuclear arms race escalated to the next level as both nations aggressively built a space program for defense and exploration.

In this time of heightened fear and insecurity, the final event that led to the Air Force Space Command (AFSPC) program came when man was launched into space. As technology developed, so did the need to establish the United States as the global power.

Higher Perspective

Traditional warfare tactics call for troops to take the high ground in order to be able to identify, assess and monitor any potential threats. In the 1960s, space became the new "high ground."

On September 1, 1982, the military created AFSPC as a major command headquarters for space operations at Peterson Air Force Base. During the Cold War, space operations focused on missile warning, space surveillance and command and control for national leadership.

With this emphasis, the Omaha District began construction projects on five of the nine bases that make up AFSPC: Buckley, Peterson and Schriever Air Force bases in Colorado; Minot Air Force Base in North Dakota; and F.E. Warren Air Force Base in Wyoming.

F.E. Warren had been designated by Offutt Air Force Base (now called U.S. Strategic Command, or USSTRATCOM) as a guided missile base and the center of intercontinental ballistic missile (ICBM) construction by the Omaha District. Home to the 20th Air Force, the base operates and maintains the nation's ICBM weapon systems in support of USSTRATCOM war plans.

Rapid advancements in the science of missiles came about during the Cold War, which had the Omaha District building facilities for ICBMs in the Midwest and the West. Crews built the nation's first operational Atlas missile launch facilities in silos surrounding F.E. Warren AFB. In later years, the District upgraded and expanded facilities at Warren to accommodate the faster and lighter Minuteman I, II and III missiles.

Photo Left: *The Hartinger Building at Peterson Air Force Base houses the Air Force Space Command Headquarters. The modern, high-tech look of the building symbolized the technology focus of the program. Built in the 1980s, the Hartinger Building received the highest honor for architectural design from the U.S. Army Corps of Engineers Chief Engineer.*

The Army Strategic Command Operational Headquarters is part of the Space and Missile Defense Command. This building houses teams involved in ballistic defense and support the Army with deployable assets that aid in theater defense.

Today, the ICBM force consists of Minuteman III missiles that provide the critical component of America's on-alert strategic forces. As the nation's "silent sentinels," ICBMs and the people who operate them have remained on continuous, around-the-clock alert since 1959 – longer than any other U.S. strategic force. More than 500 ICBMs are currently on alert in reinforced concrete launch facilities beneath the Great Plains.

AFSPC Headquarters

Peterson Air Force Base near Colorado Springs, Colo., serves as the nerve center of the Space Command program. With approximately 39,000 military personnel and civilians across the program, AFSPC requires the support of the Omaha District to construct and maintain the facilities that house such programs as the Global Positioning System (GPS), Defense Satellite Communications System, Defense Meteorological Satellite Program, Defense Support Program and the Space-Based Infrared System Program.

The Hartinger Building at Peterson serves as the AFSPC headquarters. An award-winning building that received the highest honor from the chief engineer of the Corps of Engineers, it houses senior leadership and support staff for the

During Hurricane Katrina, President George W. Bush spent time at the Command Center of NORAD at Peterson Air Force Base to receive briefings on the status of both the people and environment in the Gulf area. NORAD relies heavily on Space Command for communication during natural and man-made disasters.

command. The Army Strategic Command Operational Headquarters, also located at AFSPC on Peterson AFB, is home to the teams involved in anti-ballistic missiles and ballistic defense.

As with all Corps-designed and built facilities today, these two buildings are built to Leadership in Energy and Environmental Design (LEED) Silver standards and incorporate energy efficient systems whenever possible, taking advantage of natural daylight for lowering power and light usage as well as ambiance. Prewired systems provide flexibility and cost-effective options when reconfiguring work spaces as teams change to meet the needs of AFSPC's evolving demands.

Engineering Expertise

The demands of planning, design and construction for buildings throughout the Space Command program highlights the expertise that the Omaha District has developed over time. From the architects, engineers and planners to the teams in the fielding managing the day-to-day construction of highly complex facilities, the District's work reinforces its tradition of excellence and support for the nation.

Space Command's tracking system pinpoints and tracks debris in space around the world. This Airman is monitoring it because it can cause damage to a space launch or an orbiting satellite.

Beginning of the MILCON Program

World War II brought many changes to the U.S. Army Corps of Engineers. Previously, the Quartermaster group oversaw military design and construction projects. But when the country geared up for war by building training bases, the responsibility for military construction (MILCON) shifted to the Corps.

After the Japanese surrender on September 2, 1945, the Omaha District returned to peacetime duties. Engineers began work on the Missouri River main stem dams and agricultural levees. While the District dismantled some of the wartime construction, including prisoner-of-war camps and some of the airfields, there was still ample military construction ahead.

Peacetime Construction

The Veterans Administration asked the Omaha District to design and build about 70 hospitals across the country to care for returning military men. The District also had responsibility for providing internment facilities for those who had died in service. In the 12 years after the war, Omaha engineers undertook development and construction at a number of national cemeteries including Fort Shelling, Minn., Fort McPherson, Neb., and the Black Hills National Cemetery in Sturgis, S.D.

The United States still maintained a state of readiness for war with its active forces, reserve and National Guard. The District helped sustain preparedness through its military construction activities such as rehabilitating camps and placing Air National Guard facilities on municipal airfields.

New Defense Requirements

Almost as soon as Soviet troops occupied Berlin, the Cold War ensued. The work of the Omaha District evolved during the atomic age with rapidly developing rocketry and new technology that focused on defense against the Soviet's own growing nuclear and delivery system capability. Work also supported protection from the threat posed by Soviet Russia and Communist China's maintenance of large conventional forces.

When the North Koreans marched across the 38th parallel in 1950, the pace of the District's military construction work accelerated. This era brought the rapid development of facilities such as the Air Defense Command interceptors and Strategic Air Command (SAC) heavy bombers. When SAC headquarters relocated to Offutt AFB, Neb., the Omaha District upgraded and expanded base facilities to meet the needs of the new Air Force strategic defense command.

Photo Left: *The Security Forces Building at Offutt Air Force Base provides security to the entrance of the base. As the headquarters for U.S. Stratcom, Offutt provides strategic training and oversees the nuclear missile program. It also houses a 747 that can be used as Air Force One in the event of an emergency.*

The Omaha District's construction program at Fort Carson in Colorado Springs has increased significantly in the past few years as the base responds to new requirements for troop housing and deployment under the 1990 Base Realignment and Closure Act.

Military Transformation

Also during the Korean War, crews helped expand facilities for training combat troops at Camp Carson, now Fort Carson, Colo. More than 20 years later, Fort Carson is again the site of significant MILCON investment as part of the Base Realignment and Closure (BRAC) Act of 1990. With its roots reaching back to the 1960s, BRAC was a process that originated under President John F. Kennedy to develop and implement an extensive base realignment and closure program to adjust to the realities of post-war defense needs.

As work began on an aggressive schedule to meet BRAC timelines, the District realized that they would need to revise their normal design/bid/construction process. The result was the MILCON transformation policy that enables crews to build facilities cheaper, faster and more green yet at the same level of quality as in the past. The immediate impact was tremendous – construction costs fell by 15 percent and timelines moved 30 percent faster.

Military construction projects at Schriever Air Force Base in Colorado assists the 50th Space Wing, a component of Air Force Space Command, which is responsible for the operations and support of more than 170 DoD satellites.

The Omaha District has invested heavily in Fort Carson as the 4th Infantry transitions from Fort Hood, Texas, to Fort Carson. In supporting a more contemporary approach to smaller force structure, the facilities that support service men and women have changed. The District has set design standards for core facilities, such as barracks, brigade battalion headquarters, childcare centers and so forth. In addition, all facilities are required to be built to at least the silver standard of the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED) program in order to conserve energy at every opportunity. Perhaps the showcase facility is the Fort Carson's Brigade Headquarters, which received recognition in 2008 as the Army's first LEED Gold facility in the world.

In addition to Fort Carson, MILCON has been an integral part of numerous projects at installations such as the U.S. Air Force Academy and Peterson Air Force Base, both in Colorado Springs, Colo.; F.E. Warren Air Force Base in Cheyenne, Wyo.; and Schriever Air Force Base in Colorado.

Like all military construction projects, the headquarters building for NORAD and USNORTHCOM at Peterson Air Force Base was built to LEED Silver standards.

What Lies Ahead

Looking ahead, MILCON will continue to support expanding needs in response to the Grow the Army (GTA) initiative. In January 2007, the President requested a 74,200 Soldier increase in Army strength across the active, guard and reserve components. GTA provides additional ground forces to meet strategic demands and lessen capability shortfalls while reducing stress on Soldiers and their families. This focus means that construction will continue at a spirited pace for the next few years as installations around the country continue to make room for additional troops and to support the daily lives of troops and their families.

Clockwise from Left:
Entrance to the Aeromed medical facility at the Minneapolis/St. Paul Air Force Reserve Station; 4th Infantry Division Headquarters at Fort Carson; Tactical Equipment Maintenance Facility at Fort Carson under construction; Control tower at KI Sawyer Air Force Base on the upper peninsula in Michigan; Fort Carson construction making way for reassignment of the 4th Infantry from Fort Hood, Texas; Construction crews work on the Company Operations Facility at Fort Carson.

Non-traditional Construction Needs

When the Omaha District began its Military Construction (MILCON) mission, it focused on building support structures at military bases, hospitals for veterans and environmental projects that helped manage flood control. But along the way came a need for unique types of projects that didn't fall neatly under other areas of construction in order to support the nation's on-going defense needs.

Planning began in the 1950s for the North American Defense Command (NORAD) facility in Cheyenne Mountain near Colorado Springs, Colo. It was then that the Omaha District realized that the skills and expertise required were different from those of typical construction projects. The Omaha District created the Special Projects group to address what they rightly expected to become a growing need for one-of-a-kind construction projects for the MILCON mission.

Launch of Special Projects

Design and construction for NORAD within Cheyenne Mountain tested the problem-solving abilities of the Omaha team at every turn. First came the planning to build the equivalent of a small city within a mountain. Then came the actual work of excavating material and building a structure that could withstand the impact of a nuclear attack, allowing the people inside to live in a self-contained environment for 30 days.

During this same time, the military began developing Nike-Ajax air defense missiles, a new type of surface-to-air defense replacing the old projectiles used during World War II. The Special Projects group was involved in building the launch facilities at Army bases for the Nike-Ajax and other versions of the same missile.

The Air Force has its own antiballistic missile (ABM) system, the BOMARC, which came online in 1959 and competed with the Army rockets. The Omaha District built facilities for Nikes and BOMARCs plus intercontinental ballistic missiles at Offutt, Lincoln and Minot Air Force Bases. In addition, rapid advancements in missile technology during the Cold War had the Omaha District building facilities for intercontinental ballistic missiles (ICBM) throughout the West and Midwest.

Omaha District's Expertise Tapped

Terrorist attacks during the 1980s on U.S. Forces in Europe and the Middle East prompted the Vice Chief of Staff for the U.S. Army to direct the U.S. Army Corps of

Photo Left: *The Special Projects office was created to address the unique requirements of the increasingly complex projects on which the Omaha District was asked to work. In many cases, the District created new disciplines or ways to plan, design or implement projects as a result of the evolving requirements of the U.S. military.*

Construction of silos for the Atlas ICBM missiles took place on the prairies and high plains of the Midwest and West. The Omaha District built the nation's first operational Atlas launch facilities in silos surrounding F. E. Warren Air Force Base near Cheyenne, Wyo.

Engineers to create a group that could best protect military personnel and the staff who support them while overseas. This led to the Omaha District creating the Security Engineering Design Process (SEDP) with just a handful of people to roll it out. This small group looked at different types of anti-terrorism measures that the Corps could incorporate in building design to mitigate threats from terrorists.

Through this work, the Omaha District essentially invented security engineering as a way to counter terrorist threats and create codes for building design and construction that addressed them. What began as a small set of codes morphed into a technical manual series and today, the District provides 15 training classes a year on security engineering. This multi-disciplined group includes experts who can address the broad spectrum of terrorism threats that include car bombs, electronic eavesdropping, ballistic threats, stand-off weapons, and chemical, biological and radiological threats. This required people experienced in explosive events, hardened structures, electronic security, electronic

The Titan ICBM missiles weighed 110 tons loaded and the Titan II version had a range of 9,000 miles, 50 percent more than the Atlas.

eavesdropping and HVAC systems for chemical and biological agents.

The Omaha District was also intimately involved in the critical parts of nuclear disarmament under the Strategic Arms Reduction Treaty (START) agreement in 1983, which called for both Russia and the United States to reduce the number of their nuclear weapons. In the 1990s, the Nunn-Lugar Act appropriated funds to help the Russian government with weapons dismantlement. As part of this work, the Omaha District helped the Russians design and build a storage facility for their fissile material used in creating nuclear weapons. During this decade, the District provided expertise for the $400 million project that designed and constructed storage facilities for 50 million tons of weapons-grade plutonium.

Challenges in designing the structure were multiple, in that it had to be a heavy-duty structure that could withstand earthquakes, terrorist attacks and armor-piercing bombs. It also had to contain the radiation and dissipate heat so that the fissile material could be safely stored. The result was that the Omaha District helped dismantle Russian nuclear arsenals, which proved a major step not only in international relations between the United States and Russia, but for the world in general.

In 1984, the DoD asked the Omaha District to upgrade facilities at Ellsworth (above), Grand Forks and McConnell Air Force bases to accommodate the country's newest strategic bomber, the B-1B. The B-1B hangers and other facilities at Ellsworth were dedicated on January 17, 1987.

True Reflection of District's Talents

The new challenges that came with the Special Projects group brought out the true capabilities, talents and "get-the-job-done-right" attitude of the people who make up the Omaha District.

The group eventually focused primarily on hardened structures and transitioned into the Protective Design Center that now falls under the Global War on Terrorism/Overseas Contingency Operations mission.

9/11

On a fall morning in 2001, well-coordinated suicide attacks by Al-Qaeda on the United States forever changed how civilian and military Americans viewed their safety, both at home and abroad. Following the September 11 attacks, President George W. Bush referred publicly to the Global War on Terrorism (GWOT) to describe the scope of the threat his administration perceived following 9/11 and the military response required to confront it.

With the September 11 attacks on the World Trade Center in New York City and the Pentagon, the Omaha District was at Ground Zero to serve within a week of the attack. The team's deployment overseas was just as rapid when the call to service was ordered. Integral to GWOT [now referred to as Overseas Contingency Operations (OCO) by the Obama administration], the Omaha District provides direct support to forces, base construction and land acquisition for troops who are stationed overseas. The mission also supports troops in counter insurgency and sustainment operations with the goal of making life better for the nations that the United States supports.

Serving in Harm's Way

Since 2001, more than 100 people from the Omaha District have volunteered for deployment overseas – and 26 have voluntarily served multiple tours. This reflects the dedication of the Omaha employees who are willing to live abroad – often away from their families – and put themselves in harm's way in order to provide their skills and talents to support U.S. defense efforts.

From 2001 through 2006, the volunteers from the Omaha District have served in Iraq and Afghanistan, as well as other areas around the globe, to support contingency operations. In late 2008, as national priorities changed and the battlefront refocused on efforts in Afghanistan, the Omaha District established a formal 'sister-district' relationship with the Corps' Afghanistan Engineering District. Today, the District has, on average, more than two dozen volunteer civilians, mostly in Afghanistan, helping rebuild, and in some cases build, the needed infrastructure to support these developing democracies.

Transportation

GWOT/OCO also encompasses two centers of expertise; Transportation Systems Center of Expertise and the Protective Design Center. Both centers have a worldwide mission to

Photo Left: *Army engineer soldiers and volunteer civilians from the U.S. Army Corps of Engineers have been on the ground in Iraq and Afghanistan since 2003 helping repair and rebuild vital infrastructure.*

One of the Centers of Expertise in the Omaha District is the Transportation Systems Center. Other branches of the military tap the District to help with technical review, quality control and training for airfield, railroad and roadway projects.

support any engineering district that has a project in these areas of expertise.

The Transportation Systems Center of Expertise serves as technical oversight, providing the reviews for the design and construction work performed by the Trans-Atlantic Center of the Corps based in Winchester, Va. While most projects are design/build, the Omaha District's involvement begins with the request for proposal (RFP) and development of the project specifications. The team also reviews all airfield, railroad and roadway projects with a construction budget of $3 million and higher to ensure that the design addresses the highest quality standards. The only group under the Department of Defense to provide training and on-site paving workshops, the group also reviews all Corps-designed projects under GWOT/OCO for the Air Force.

For example, the Omaha District provides training and logistical support on the $591 million construction project at the Bagram Air Field, a militarized airport about 27 miles north of Kabul in Afghanistan. District trainers bring together the local contractors, quality control experts, paving personnel, testing teams and additional partici-

Omaha District members staffed one of the first forward engineering support teams (FEST) that worked with Iraqi engineers in the days following the country's liberation in 2003

pants with lab testers, the Air Force and other Corps personnel.

During these training sessions, the entire team learns what is required for a high-quality pavement construction project. After training wraps up, the District volunteers continue to make themselves available to answer questions for troops or civilians about construction and makes on-going recommendations.

Protective Design Center

The Protective Design Center was an outgrowth of the Special Projects group under the Military Construction (MILCON) mission. Work first began in the 1980s under Special Projects with the development of the security engineering design process that examined the different types of anti-terrorism measures that the District could incorporate into the design of military buildings in order to mitigate terrorist threats. The changing requirements that came as a result of the terrorist attacks on September 11, 2001, have led to a center of expertise that has changed how buildings are designed and constructed in order to protect our most valuable asset - the people who work within them.

The group works with customers to determine the size and type of blast threat with which they're concerned, and then helps calculate elements of the building to help resist the blast and keep the people inside safe. These may include threats that range from a single suitcase bomb to vehicles filled with explosives driven at high speeds toward a military compound or facility.

The Omaha District's GWOT/OCO team supports U.S. troops through land acquisition and the construction of bases overseas. The Omaha District is one of eight that support and man the Afghanistan District, which provides a great deal of day-to-day construction management in Afghanistan.

The design standards take into consideration everything from how the buildings themselves are designed to wall thickness, window placement and roof construction – anything that will resist a blast and keep troops and civilians safe. Since the inception of the center of expertise, the Department of Defense has adopted a minimum set of anti-terrorism standards for design and construction, and all military installations around the world use these standards.


KOBELCO

Chapter Three

Environmental

Post War Awareness

The signing of the peace treaties that ended World War II prompted a different direction in the American economy. The nation no longer needed to place urgent demands on its natural resources in support of the war effort. As the country further developed its infrastructure, a new movement began to take hold – conserving, protecting and thoughtfully using our land, water and air.

Environmental Legislation

The National Environmental Policy Act of 1970 created the U.S. Environmental Protection Agency (EPA). Both of these led to an expanded mission for the Corps, particularly the Omaha District.

The Comprehensive Environmental Response, Compensation, and Liability Act of 1980 – or the "Superfund" Act – pumped $1.8 billion into toxic and hazardous waste cleanup within just five years. This put the spotlight on the Omaha District as it shared responsibility with the Kansas City District as the Corps' Mandatory Center of Expertise for Hazardous and Toxic Waste (HTW). Crews began cleanup work across the country at military installations, and current and former Department of Defense sites.

Innovative Talents, Innovative Processes

The growing expertise of the Omaha District proved itself time and again. Teams created new, efficient and cost-effective ways to address the environmental challenges they faced.

The District formed its own Hazardous Toxic and Radioactive Waste (HTRW) group; a Rapid Response team that could react and be on site immediately to evaluate and contain a chemical rupture or spill; and development of Total Environmental Remediation Contracts (TERC), which significantly changed the way all Corps districts approached contracts for environmental remediation work.

On-going Expertise

Today, the Omaha District is a recognized expert and leader in environmental stewardship. The Corps has cleaned up millions of acres of land on hundreds of sites, improving the land, water and air quality along the way. And in the end, the District continues to make the country a safer, healthier place to live.

Photos Left: *The Environmental mission of the Omaha District grew out of the need and desire to care for and protect the environment in all areas where the U.S. military conducts operations. The District has worked with numerous government agencies to identify and clean up sites around the country.*

While much of the Omaha District program requires planning and budgeting years in advance, the District often responds to natural and manmade emergencies. The District brings a diverse set of problem solvers and problem solving tools from across many functional areas to meet the needs of the nation.

Coastal Recovery

Following the devastating storms that hammered the Gulf Coast in 2004, the Omaha District joined sister districts to provide nationwide assets to help with the area's recovery. The initial federal response has evolved into a combined private sector and federal approach that provides sustainable protection to the southeastern region. As part of this work, the men and women of the Omaha District have provided both onsite skills, resources and personnel to the emergency as well as reach-back tools and expertise.

The Civil Works mission includes a local Emergency Readiness program. The Omaha District also taps into the volunteer spirit across the district to send volunteer personnel within hours to the field in response to storms, earthquakes, fires or whatever disaster falls upon our shores.

Birth of Environmental Stewardship

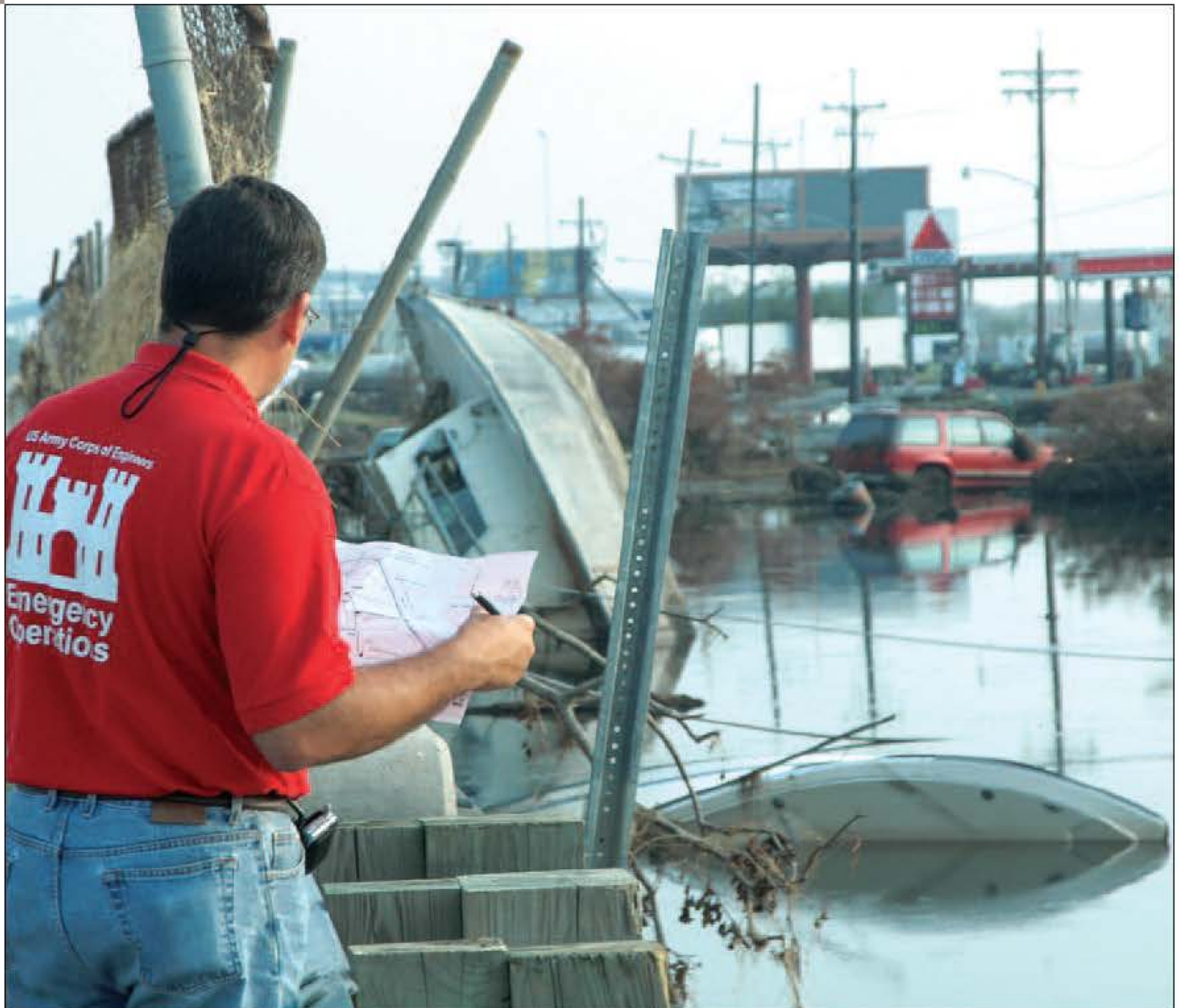
This ability to quickly respond to natural emergencies has also helped the Corps identify and face man-made natural disasters. As society's general knowledge and awareness grew about the dangers of waste and contamination, so did the Corps' attention to the environment. With the passage of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), or the "Superfund" Act, a $1.8 billion, five-year fund was established for cleaning up toxic and hazardous waste sites across the United States.

Two years later, Congress directed the U.S. Environmental Protection Agency (EPA) to work with the Corps as a partner in environmental cleanup. Winning an open competition within the agency to serve as the Corps' Mandatory Center of Expertise for Hazardous and Toxic Waste cleanups (HTW, the Radioactive area was added at a later time), the Missouri River Division split the assignment between the Omaha and Kansas City Districts that same year. Each was given responsibility for projects in about half the country.

Program Expansion

Omaha's cleanup experience began when the new HTRW office within the District's Engineering Special Projects Branch took on the job of restoring to "cleanliness" a Superfund site at Old Forge, Penn. The program – and the number of people who supported it – took off in 1984 when the government created the Defense Environmental Restoration Program (DERP) to undertake HTRW programs at DoD installations, both current and historic.

Photo Left: *Army Engineers worked with local emergency response teams to engage in flood fighting efforts to save lives and protect communities in the wake of natural disasters. (Photo provided.)*



Engineers from the Corps continue today to assess damage, design new systems and help restore life to communities along the Gulf. (Photo provided.)

DERP is a multi-faceted initiative that includes the Environmental Restoration Program (ERP); Formerly Used Defense Sites Program (FUDS), which is managed exclusively by the Corps of Engineers; Environmental Quality; Base Realignment and Closure Act (BRAC); Military Munitions Response Program (MMRP); and International and Interagency Support, all of which have authority over the HTRW program.

One of the FUDS projects under DERP involved environmental cleanup at the Rocky Mountain Arsenal in northeast Denver. In the 1950s, the Omaha District had expanded facilities at Rocky Mountain Arsenal used during World War II for manufacturing chemical warfare materials. In the 1970s and 80s, the Arsenal was used as a demilitarization site to destroy munitions and chemically-related items. In 1984, the Corps began an investigation of site contamination in response to the Superfund Act. Three years later the Arsenal was placed on the National Priorities List of Superfund sites. This provided funding for long-term remediation action.

The District's work continued to expand through a partnership with the Air Force that began with a successful cleanup project at George Air Force

Assuring and maintaining the quality of groundwater serves as one of many steps in assuring the public's safety and protecting human health in the event of a situation that requires the rapid response team.

Base in California, for the former Tactical Air Command (TAC). With this project under the Districts' belt, the Corps began its long-term relationship with the Air Force.

Creating Rapid Response Team

As more and more projects that came to the Omaha District's Environmental Remediation Team required an immediate response because of the severity of the situation, the District created a Rapid Response strike team in 1994. This group resolves environmental problems and issues for any federal agency, whether it's a simple tank removal or a more complex, multi-site remediation project. The team can be on site usually within three to 30 days to evaluate and contain a situation that, if not addressed immediately, may threaten public safety, have an impact on human health or detrimentally affect the environment in any way.

By creating this specialized organization, the District was able to prevent additional damages at HTRW sites and the surrounding areas and saved money along the way. The District's environmental restoration efforts have ranged from Alaska to the shores of the Atlantic. The Omaha District stands as the largest player in the field with the most staff dedicated to the purpose and by far the largest amount of contract awards.

Establishing a Legacy

Over the past 30 years, the Omaha District has performed hazardous, toxic and radioactive waste cleanup activities in several foreign countries, more than 40 states, the District of Columbia, Puerto Rico, the U.S. Virgin Islands, and other U.S. territories and possessions.

In the aftermath of major natural and man-made events, response teams such as the "Blue Roof" teams are a part of the Federal Emergency Management Agency mission to respond to local communities devastated by such storms. (Photo provided.)

Currently, the District and its Environmental Remediation Branch work for EPA Regions V and VIII headquartered in Chicago and Denver, respectively. Crews perform HTRW design and construction for the Army Material Command, Training and Doctrine Command and National Guard; for the Air Force's Air Combat Command and other commands; and provides support services to other federal agencies including the Department of Energy.


DEERE

Unknown Hazards

During the 1940s, 50s and 60s, not much was known about chemical spills and disposal and the long-term effects on the environment. The U.S. Army Corps of Engineers has learned a great deal since those years, which is reflected in the overall goal of the Environmental group – to serve the federal government and the remediation of environmental contamination for our federal customers.

1980s and the Superfund

As society's general knowledge and awareness grew about the dangers of waste and contamination, so did the Corps' focus on environmental stewardship. The 1980s brought the passage of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), more commonly known as the "Superfund" Act. CERCLA established a $1.8 billion, five-year fund to start the cleanup of toxic and hazardous waste sites across the United States.

In 1982, Congress directed the U.S. Environmental Protection Agency (EPA) to work with the Corps as a partner in environmental cleanup. After an open competition that involved every district, work with the EPA for all U.S. environmental cleanup work was divided between the Omaha and Kansas City Districts.

The Evolution of TERC

When the Omaha District created a new Hazardous and Toxic Waste Branch (radioactive was added later as a service) of the environmental mission in 1984 to support efforts for the EPA, work began at cleanup sites such as the Rocky

Photo Left: *By creating the Total Environmental Restoration Contract (TERC), the Omaha District enabled this and other districts to respond to environmental emergencies must faster and more thoroughly than the previous contract system.*

The Total Environmental Restoration Contract (TERC) has enabled crews contracted by the Omaha District to respond quickly and efficiently under the Environmental Restoration Program. For example, work conducted under TERC contracts at Shaw Air Force Base have included:

- Removal of approximately 496,000 gallons of free-phase fuel from the POL yard from 1988 to 2005.
- Removal of 1,089 pounds of TCE and 725 pounds of PCE from the hydraulic containment system since 1997. Over 890 million gallons of contaminated groundwater have been extracted, treated and discharged.
- Development and implementation of Land Use Controls, which were used for the first time in the state of South Carolina. These restrictions allowed contamination to remain in place without threat to human health and the environment.
- Implementation of groundwater mixing zone variances for the first time in the state of South Carolina. These regulations allowed contamination to remain in place above maximum contaminant levels while the materials naturally degrade and the aquifer is restored.

By using an umbrella contracting system, crews are able to conduct environmental cleanup work over a 10-year period. This creates a great deal of efficiencies and saves money along the way.

Mountain Arsenal in Commerce City, Colo., and George Air Force Base, Victorville, Calif., for the former Tactical Air Command (TAC). The Air Combat Command assumed elements of both TAC and the Strategic Air Command (SAC) during a 1992 Air Force reorganization.

The Omaha District's partnership with the Air Combat Command and its desire to implement an accelerated cleanup program at its bases led to the joint development of an innovative contracting process called the Total Environmental Restoration Contract (TERC).

TERC is a cradle-to-grave contract of a 10-year duration that's designed to speed up the cleanup process and reduce costs by eliminating contractor hand offs, extra study and other expenses. Individual delivery orders are placed under this umbrella contract for specific projects on a single installation. Perhaps one of the most significant elements of the TERC contracting process is the Omaha District's ability to issue a work order and be on site within 24 hours, rather than laboring through the traditional contracting process and waiting months to respond to the people for whom the District works.

A quick response to hazardous toxic and radioactive waste cleanup will minimize the chance of contaminants reaching the groundwater.

The first program of its kind for the Corps, TERC was controversial in its development because the process was unproven. But the expertise of the Omaha contracting team ensured its success, which has led to TERCs becoming the standard throughout the U.S. Army Corps of Engineers.

Shaw Air Force Base

The first project under TERC involved the environmental cleanup at Shaw Air Force Base near Sumter, S.C. When the Omaha District first became involved in 1988, it was part of a rapid response action to address fuel floating on the water table at the petroleum, oil and lubricants (POL) yard. The District's role increased a year later when crews discovered trichloroethylene (TCE) in private drinking water wells at an adjacent mobile home park. Omaha crews became further engrained once the Environmental Restoration Program (ERP) for the entire base was implemented.

The situation resulted from leaking fuel underground storage tanks and above-ground storage tanks in the POL yard that had caused extensive fuel contamination on more than 200 acres of the base. TCE and tetrachloroethylene (PCE) had been released from maintenance shops and a dry cleaner. This contamination eventually impacted on-base and off-base groundwater within a plume that extended two miles long by one mile wide and affected three aquifers.

Environmental remediation work at Shaw Air Force Base involved nearly two decades of extensive cleanup on over 200 acres. Groundwater contamination extended off base and included a total area two miles long by one mile wide.

From 1988 to 2005, approximately $62 million has been spent under TERC contracts for investigation, design and remediation activities within the ERP. The remediation investigation and systems have been progressive, innovative and precedent-setting for the Air Combat Command of the Air Force as well as the U.S. Army Corps of Engineers.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U.S.ARMY

One District, One History

Over the past 75 years, the Omaha District of the U.S. Army Corps of Engineers has earned an enviable reputation for delivering on-time projects, high-quality products and unparalleled service. Our early work included building dams and levees to manage the flood risks associated with the Missouri River and has grown to include construction on projects that serve several branches of the military, and support the people who protect our country both at home and abroad.

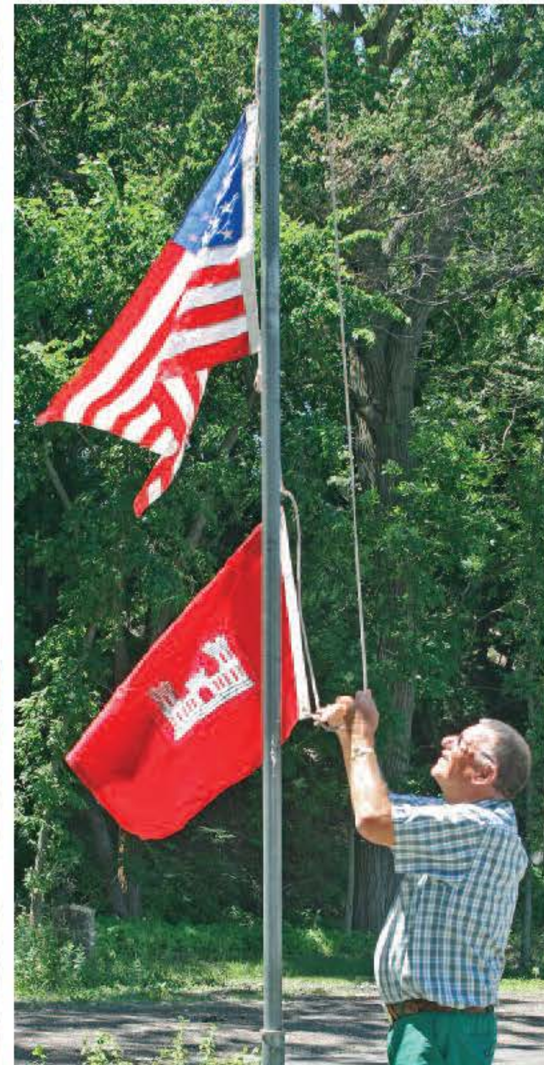
Thousands of people have served the Omaha District since its inception and thousands more are to come. These dedicated people have proven their "can-do" attitude by developing expertise in areas previously undiscovered yet desperately needed by our country.

Regardless of their tenure or mission, one thread will connect the past with the future: The Omaha District and the people who serve it will remain the "go-to" district by continuing its selfless dedication to the nation.

The District's history of distinguished service to the Armed Forces and the nation continues to be marked by engineering excellence and outstanding technical support. In addition to the civil works, military construction and environmental remediation missions of the Omaha District, the district is also home to the Corps'

- Protective Design Mandatory Center of Expertise
- Transportation Systems Mandatory Center of Expertise
- Rapid Response
- Interior Design Center of Expertise
- Hydrant Fuels Center of Expertise
- Military Munitions Response Program Design Center
- Religious Facilities Center of Standardization
- Access Control Points Center of Standardization

These special capabilities play a major role in our support to Overseas Contingency Operations and the district's emergency/disaster response missions following floods, hurricanes, blizzards, tornadoes and earthquakes.



Hydropower

- Number of hydropower projects in operation: 6
- Installed generating capacity: 2,435,600 kilowatts
- Power generated in FY 08: 4.8 million megawatts hours (approximately 9% of energy needs of upper Midwest)
- Revenue from power sales in FY 08: $90.8 million

The Omaha District

- Covers 700,000 square miles
- Has nearly 60 locations
- Manages 27 dams (including 6 hydropower main stem dams
- Maintains 247 miles of river navigation
- 99 miles of Missouri National Recreation River
- Manages 284 recreation areas
- 6,627 miles of shoreline
- Processes nearly 5,000 regulatory permit applications annually

Omaha District:
Past, Present and Future
A perspective from Colonel David C. Press

A lot has happened in the last 75 years.

When the Omaha District was formed in 1934, the United States was in the midst of the Great Depression. It had devastating effects in nearly every country, both rich and poor. The first rumblings of a second world war were underway as the Chancellor of Austria was assassinated by Nazis and Hitler became fuehrer. And the Missouri River was ravaging farmland with yet another flood.

Little did we know at the time that each of these events would provide the foundation for the work that the Omaha District continues to support today. From its inception, the District has served as a leader on projects around the bend and around the world.

The economic crisis of the Great Depression meant that construction was virtually halted everywhere. People lost jobs and became desperate to support their families. When Franklin D. Roosevelt was elected president in 1932, he introduced a number of major changes in the structure of the American economy, using increased government regulation and massive public-works projects to promote a recovery.

As part of his New Deal policy, his administration created the Works Progress Administration (WPA), which created jobs for millions of people. Between 1935 and 1943, the WPA provided almost 8 million jobs; from 1936 to 1939, it pumped nearly $7 billion into the American economy.

Work on the first of the six main stem dam projects began at Fort Peck in 1932 thanks to WPA. Fort Peck construction generated jobs for 10,000 people and supported a boomtown community of 40,000. The project received due attention through visits by President Roosevelt and being featured on the inaugural issue of LIFE magazine. Planning, design and construction continued on the other five dams until the last, Big Bend, opened in 1963.

When the United States became embroiled in World War II, district crews equipped military installations around the country with the support structures needed to house troops and bombers. When the Cold War followed, they kept pace with construction on missile silos that housed intercontinental ballistic and air launch cruise missiles. As defense of the nation took to the air, it was time to build a fortress that could detect and withstand a nuclear attack – the North American Defense Command (NORAD) Combat Center inside Cheyenne Mountain near Colorado Springs, Colo.

More recently, the Omaha District has increased its construction work as a result of the 1990 Base Realignment and Closure Act and the Grow the Army initiative. As the 4th Infantry Division transitions from Fort Hood, Texas, to Fort Carson, Colo., the base needed to be up and running to accept the movement of troops. While we've historically performed a significant amount of construction projects for the Air Force, in the last two decades the District has increased our work significantly on Army bases in addition to Fort Carson.

As we look to become better environmental stewards in all areas of our work, the military construction group has determined that all military facilities must be designed and constructed to meet the U.S. Green Building Council Leadership in Energy and Environmental Design (LEED) Silver standards. And in 2008, the

Brigade Headquarters at Fort Carson received recognition as the Army's first LEED Gold facility in the world. Similarly, the Air Force Weather Agency at Offutt Air Force Base in Bellevue, Neb., was the first facility in the Air Force to receive such certification.

Since the terrorist attacks on September 11, 2001, the Omaha District has been intimately involved in the Global War on Terrorism/Overseas Contingency Operations (GWOT/OCO). We have an increased role in supporting and leading GWOT/OCO projects. We deploy volunteers who get into leadership positions and take the lead on design and construction work.

We have increased our overseas deployment significantly, up 600 percent since June 2008. In fact, over 2 percent of the Omaha District's workforce is deployed on a volunteer basis, one of the best rates in the U.S. Army Corps of Engineers. We have a historical number of programs in place and still continue with deployment overseas.

Two centers of expertise have evolved from our GWOT/OCO work: The Transportation Systems Center of Expertise and the Protective Design Center. We work with other districts and branches of the military around the world to design and build facilities that protect the people who work within them, and ensure that products and people get to where they need to be, when they need to be there.

The Omaha District is the largest in the continental United States when it comes to our geographic footprint and the complexity of the jobs on which we work. We've become the go-to district; others know that they can pick up the phone, talk to us about a design approach or construction technique, and we can solve their problem. Our track record with delivering quality projects, products and services is well known throughout the world and will only get better in the future.

In 2009, our 75th year, the district's workload is our biggest yet, totaling approximately $1.5 billion for this year alone. At times our construction placement tops $60 million in a single month. Our expertise is spread across all programs that the Corps offers and is requested by other districts for projects around the world.

With this foundation of success, the sky is the limit as we move forward!

We have many employees who've worked for the District for more than 30 years, some for almost 50. As new members join our team, our seasoned experts will guide and train them to ensure that we transfer valuable knowledge from one generation to another.

It's interesting to consider how people from a relatively small city in the Midwest become such experts. It has a lot to do with attitude, how they were raised growing up and how they were "raised" by the Corps. The Omaha District shares a strong work ethic. People are honest and trustworthy and they do what they say they will do. Omaha has built a reputation on delivering quality projects, products and services to each of our customers, every time.

In the next 75 years, the numbers we report will change. But what I expect to remain are the attitudes and dedication and the pride that every one of our team members expresses through their work.


Captain
James M. Young
1934-1935


Lt. Colonel
Herbert B. Loper
1935-1938


Lt. Colonel
William M. Hoge
1938-1940


Lt. Colonel
Helmer Swenholt
1940-1942


Lt. General
Lewis A. Pick
1942-1942


Lt. Colonel
Ellery W. Niles
1942-1943


Colonel
Ole G. Hoass
1943-1943


Lt. Colonel
Delbert B. Freeman
1943-1947


Colonel
Louis W. Prentiss
1947-1949


Colonel
Henry J. Hoeffer
1949-1952


Colonel
Hubert S. Miller
1952-1953


Colonel
Thomas J. Hayes III
1953-1957


Colonel
David G. Hammond
1957-1960


Colonel
Harry G. Woodbury, Jr.
1960-1963


Colonel
Harold J. St. Clair
1963-1967


Colonel
William H. McKenzie III
1967-1969


Colonel
B. P. Pendergrass
1969-1972


Colonel
Alfred L. Griebling
1972-1974

Colonel
Russell A. Glen
1974-1976

Colonel
James W. Ray
1976-1979

Colonel
Vito D. Stipo
1979-1982

Colonel
William R. Andrews, Jr.
1982-1985

Colonel
Steven G. West
1985-1988

Colonel
Donald E. Hazen
1988-1991

Colonel
Stewart H. Bornhoft
1991-1993

Colonel
Micahael S. Meuleners
1993-1996

Colonel
Robert D. Volz
1996-1999

Colonel
Mark E. Tillotson
1999-2001

Colonel
Kurt F. Ubbelohde
2001-2004

Colonel
Jeffrey A. Bedey
2004-2006

Colonel
David C. Press
2006-2009

Pre-1972

Daniel Thornton
Consultant to the Omaha District
1920-1953

Pre-1972

Charles Cook
Chief, Construction Division
1912-1925
1928-1957

Pre-1972

John Hetherington
Assistant Comptroller
1927-1957

Pre-1972

George Evans
Area Engineer, Ft. Randall Dam
1927-1960

Pre-1972

Jack Gardner
Chief, Design and Survey Section, Operations Division
1929-1961

Pre-1972

Raymond Huber
Chief, Channel Stabilization Sec., Civil Design Br, Engineering Division
1926-1963

Pre-1972

Edward Johns
Chief, Civil Design Branch
1935-1963

Pre-1972

Bernard Hayes
Chief, Personnel Branch
1930-1964

Pre-1972

John Sibert
Area Engineer, Oahe Area
1931-1964

Pre-1972

Kenneth Ristau
Chief, Basin Planning Branch
1933-1965

Pre-1972

Vincent Murphy
Chief, Office of Counsel
1942-1966

Pre-1972

Jacob Veatch
Chief, Safety Office
1928-1969

1972

Sidney L. Price
Chief, Construction Division
1932-1969

1973

Charles L. Hipp
Chief, Enigneering Division
1932-1971

1974

Lester O. Ritter
Comptroller
1934-1969

1974

Dwaine G. Warman
Chief, Service Branch, Engineering Division
1941-1972

1975

Milton Micke
Executive Assistant
1930-1969

1976

Aaron H. Bauman
Supervisory Stuctural Engineer
1939-1972

1976

Robert E. Roper
Supervisory Civil Engineer, Lewis & Clark Lake
1937-1972

1977

Gretchen Hedke
Chief, Resevoir & Hydroelectric Investigation Unit
1943-1970

1977

Ralph F. Rader
Chief, Military Design Branch, Engineering
1946-1968

1978

Marvin A. Bromberg
Denver Resident Engineer, Construction
1948-1973

1979

Charles Heim
Chief, Construction Division
1937-1974

1980

Warren D. Withee
Chief, Construction Division
1944-1976

1981

Wilfred W. Bahle
Accounting Officer, Resource Management Divison
1940-1978

1982

James E. Hye
Chief, Construction & Technical Branch, Rocky Mountain Office
1951-1979

1983

Lorin Otto
Chief, Operations Division
1930-1973

1984

John J. Buford
Division Counsel, Missouri River
1951-1980

1985

Robert H. Livesay
Chief, Water Quality & Sediment, Hydrologic Engineering Branch
1946-1977

1986

Art R. Cognard
Chief, Navigation Branch
1932-1972

1987

Jack D. Johnson
Chief, Emergency Management Division
1948-1983

1988

Robert G. Burnett
Chief, Engineering Division
1946-1982

1989

Marvin G. Ellis
Assistant Chief, Engineering Divison
1946-1978

1990

Richard A. Moses
Electrical Engineer, Constructibility Section
1959-1973

1991

L. Raymond Holland
Master Pilot, Missouri River, Maintenance Base
1938-1973

1992

Mary A. Maranville
Program Analyst, Management Control
1951-1985

1993

John E. Sinn
Construction Representative, Black Hills Area
1951-1985

1994

Jack Unitt
Park Manager, Tri-Lakes Project Office
Retired 1990

1995

Majorie M. Lakin
Hydraulic Engineeer, Reservoir Regulation Section
1946-1992

1996

photo not available

LaVerta Hood
Supervisory Administrative Assistant, Fort Crook
1958-1990

1997

Arvid L. Thomsen
Chief, Planning Division
1965-1989

1998

John H. Simon
Chief, Construction Division
1962-1995

1999

Howard C. Rudloff
Executive Assistant
1958-1998

2000

photo not available

Neil R. Brunson
Chief, Construction Division
1958-1998

2001

Carol Atherton
Chief, Information Management Office
1966-1996

2002

Oswin Keifer Jr.
Chief, Material & Airfield Pavment Design
1946-1999

2003

Stanley L. Carlock
Chief, Envionmental Branch
Retired 1994

2004

Richard D. Gorton
Chief, Regulatory Branch-Operations
1962-1997

2005

photo not available

Ronald B. Holland
Chief, Technical Support Section, Quality Assurance

2006

David Kadlecek
Chief, Natural Resources Branch, Lake Oahe
1964-1984

2007

Norma Kolbe
Executive Assistant, Chief Logistics
1977-2003

2008

Robert J. Vodicka
Asst. Chief, Operations and Construction
1963-2005

2009

Joseph J. Grasso
Acting Chief Special Projects, Asst. Chief, Engineering Division
1960-1996